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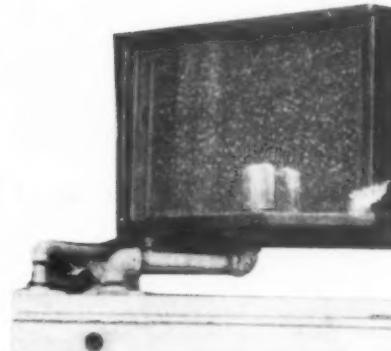
More About My Observation Hive

By Arthur F. Brown

THIS observation hive must have a ventilating space of good size and covered with wire screen. Ventilation is best supplied by having the bottom of the hive project out beyond the glass on one side for 2½ to 3 inches, and a space of ½ to 1 inch deep by not less than 10 or 12 inches long by 3½ inches wide cut down in the bottom board, this cut-out space extending under the glass side inside the hive for ½ to ¾ inch, the full length. The top outside the glass is covered with ½-inch mesh heavy wire screen. Through this the bees can fan out foul air and no direct draft can blow into the hive. In adjusting the wire screen, turn ¼ inch of the edge against the glass up at right angles, as this helps to stiffen and makes it easier for the bees to fasten to the glass. A very small strip of wood is inserted in the ¼-inch space between the two glasses in the opening. The bee entrance should come up in the level floor and not in this cut-out space.

A 1-inch hole is bored in the cover and another in one end. Through the first a little thin feed can be poured to trickle down on the glass inside and makes it interesting to watch a long line of bees lapping it up. Also for amusement a few finely cut threads of paper can be inserted. The way the bees maneuver to take these outside is interesting.

A convenience is a slot 1 inch wide by 5 inches high in one of the ends about midway, supplied with a removable well-fitted plug. This slot is for the purpose of providing the means to insert a queenbee in the space between the end of the hive and the end bar of the frame. This space should be ½ inch instead of the regulation ¾ inch. At this end a flat wire cage can be used having the candy in a plug of wood in the



In the June issue is an article, "Beekeeping Under Difficulties," in which the observation hive used by Mr. Brown is mentioned. We are now able to supply further details of the construction of this ingenious hive, by Mr. Brown himself.

top of the cage for the bees to eat out. One side of this cage could be placed directly against the glass side. Thus one can observe the queen's actions and the first bees as they gain entrance inside; also readily see the bees feed the queen.

There should be two slender nails projecting up from the bottom board at each end of the frame on each side to hold the frame and prevent swinging when the hive is quickly revolved. One and seven-eighths inches is about the correct width inside the hive.

My hive has a 6-inch deep glass super, the frame of which presses down to within a bee space (3/8 inch) of the top bar of the frame below. This super should be put on during warm weather when the hive becomes well filled with bees. It affords more ventilation inside and

gives excellent opportunity to observe the bees drawing out comb from below and the placing of bits of wax taken from the bodies of other bees.

If a part of this comb foundation is turned at right angles outwards toward the glass, one can see the cross section work of comb building as they draw it out and attach it to the glass.

A hive is well filled with bees ere they go above to draw foundation and to store honey or rear brood. This crowds the lower brood comb and you cannot observe conditions there so well as when there are fewer bees.

There is an extension electric light about a foot above my head. This is a great convenience for examining the bees and their activities at night. My observations are that during warm weather or whenever the temperature is above 60° F. the bees in the hive are always active. Night or day, it is the same to them.

When the bees are first put into the hive, if they do not find their way out readily, remove the hive from the pipe and pour a little feed down, smearing it around the top edge of the pipe, and put in enough for a little to go out through to the outside.

When not observing the bees it is best to keep the flat side of the comb against the window, as the bees then find their way out better, especially when young bees are taking their flight. If the end of the hive is toward the light the bees rush there to get out.

Less than one inch inside diameter of pipe would be too small. I waxed the inside of the iron pipe. The pipe seen just to the left of the hive is a swinging book rest and of course not connected with the hive.

An 11 ¼-inch depth of frame (Modified Dadant frame) makes a

far more suitable size for an observation hive than the regular Langstroth depth frame. I've had both in use in a glass hive.

To open and manipulate, remove the hive from the stand and carry it out of the house, near the bee entrance. Plug the pipe holes as you lift the hive off. Thus flying bees are kept out of the house.

Do not let your bees lack for stores of honey. They use much when rearing brood. Feed them.

And, lastly, do not forget that this arrangement for an observation hive must have means for ample ventilation other than that coming through the pipe, more during warm weather than cool.

DOINGS IN THE NORTHWEST

By N. N. Dodge

During October, Miss Ella Lehr, of the Ella Lehr Cooking Schools, with headquarters in San Francisco, made a trip through Oregon and Washington, going as far north as Bellingham, just south of the Canadian border. Miss Lehr is establishing and extending her line of cooking schools, operated in connection with daily newspapers throughout the West and Northwest. She is especially interested in the numerous uses of honey in the kitchen, and states that she plans to use more and more honey recipes in her recommended menus. At the present time she is carrying on investigational work with honey particularly as to its use in various recipes, as all of the recipes which she gives out are tested by herself. She is a graduate of the Home Economics Department of the Colorado Agricultural College. While in Seattle, Miss Lehr visited the Pacific Slope Honey Company's bottling plant and the offices of the A. L. Boyden Company.

The influence of the heavy fireweed honey crop harvested in western Oregon is still being felt on the Portland market. A recent sale of three hundred cases netted the producer less than 8 cents per pound. This was water-white honey. As soon as the local surplus is absorbed, a strengthening of prices is anticipated.

According to Mr. Clarence E. Drexel, of the Drexel Apiaries, Delta County, Colorado, beekeepers of the western slope are renewing their enthusiasm in beekeeping. Many who have been attempting to sell out, or even abandon their bees, are coming back stronger than ever. The slow, but steady, awakening of the public to the health and food values of honey is apparently the basis for the renewed efforts of these western

INTERESTING PERSONALITIES

V. G. Milum



V. G. Milum, the efficient secretary of the Illinois Beekeepers' Association, is a good beekeeper and a capable teacher. As a member of the faculty of the State University, Milum teaches bee culture. He has a very nice experimental apiary and produces a creditable crop of honey in spite of the fact that experimental work is likely to interfere with the normal production.

It would take a good deal of space to tell all the interesting things about Milum. He served in the world war, was shot through the head by a German bullet during a battle on the western front. This was followed by a long hospital experience, where he was patched up by the surgeons.

After the war he worked with Professor Wilson at the Wisconsin University, where he secured his doctor's degree. From Wisconsin he came to Illinois, where his work at the university has attracted favorable attention. In cooperation with Inspector Kildow, he conducts an annual beekeeping tour, which has served to help the beekeepers to get better acquainted. Milum is capable and efficient and always on the job. An organization is fortunate in having such a man for secretary.

Colorado bee men. Ranging from white to light amber, with the majority extra-light amber, the honey crop of the western slope is darker this year than usual, although a slightly heavier than normal harvest was made. One car of white honey sold in Delta, Colorado, early in Oc-

tober, at 7 cents. Drexel reports a total of 60,000 pounds as the surplus of the Drexel Apiaries. This is being handled through the Colorado Honey Producers' Association.

The following report of Northwest beekeeping conditions was made by Mr. Floyd J. Buck, chairman of the honey committee, at the thirteenth regular meeting of the Pacific Northwest Advisory Board, held in Seattle, September 20, 1929:

"Production of honey during the 1929 season has been spotted; however, in our Northwest district we find a larger production than in 1928.

"Estimated car needs for the 1929 crop movement during the coming three months for the Northwest states, Washington, Oregon, Idaho, and Montana, will be 150 cars.

"Market conditions for honey this fall are the best since 1925. Practically all old crop was cleaned up, and prospects are for a better price in the near future for the producer.

"Bees are generally better in shape at this time as compared with this time in 1928. This should result in less winter losses this coming winter and should also make for a better year in 1930."

The Bureau of Entomology and the Bureau of Agricultural Economics of the U. S. Department of Agriculture have issued a preliminary report of an economic study of honey production in Utah, Wyoming, Colorado, Idaho, and Montana during the season of 1928. This report, prepared by E. L. Sechrist, Associate Apiculturist, and R. S. Kifer, Associate Economist, gives an account of apiary management, with detailed records of labor and cash expenses, and production records amassed from reports of beekeepers throughout the region. Officials of the Bureau of Apiculture expect this report to be of considerable value to beekeepers of the Intermountain states, and plan to conduct further investigations in other regions with the purpose of furnishing corresponding information to beekeepers in other parts of the United States.

Northwest beekeepers were saddened by the news of the death, on October 23, of Mrs. Daniel Wurth, wife of the well known and highly respected Yakima County beekeeper. Mr. Wurth is one of the pioneer beekeepers of the Yakima Valley, both in respect to the date of establishing his apiaries and in taking up new and modern beekeeping practices. His wife has always been at his side in the bee yard and honey house, and at the State Fair of 1929 she assisted him in making his display, which took the sweepstakes as the most interesting, attractive, and instructive exhibit in the department. North-

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west beekeepers sympathize with Mr. Wurth in his great loss.

Mr. W. A. Erickson, free-lance salesman, is bringing honey to the attention of Northwest housewives in a forceful, if unusual, manner. As a salesman, he handles numerous lines of food products, among which honey is prominent. Being an impersonator of no mean ability, Mr. Erickson makes use of his talent twice each week over radio station KXA, of Seattle, telling stories and jokes in a broken Scandinavian brogue of which he is a past master. In these stories and anecdotes he brings in, whenever possible, the food products which he handles, telling at what markets they may be obtained and what grocery stores handle them. Mr. Erickson's Scandinavian hour is very popular among the radio fans, and as a result the storekeepers are finding that his products have increased in demand since he took up this unique selling plan.

Two State Beekeepers' Association conventions will be held on the Pacific Coast in December. The Washington convention is scheduled for December 3 and 4, at Mount Vernon, and the California beekeepers will meet in San Diego on December 11, 12 and 13. Although beekeepers have been organized in the State of the Golden Bear for forty years, this is the first time that the convention goes to San Diego. According to Fred Hanson, live County Bee Inspector and booster for everything apicultural, a record attendance is expected, with beekeepers from Arizona and Nevada coming to swell the ranks. A fine program of instruction and entertainment has been planned.

Reprints of "Raising Kehn With Honey"

Quite a number of requests have come in for reprints of the article with the above title, by Natt Noyes Dodge, which appeared in the October number of the Journal. We have still several hundred copies left, if any more of our readers would like to have samples for handing out to their bakers.

Ontario Beekeepers Take Premiums in England

For the seventh year, Ontario honey producers won first and second prizes at the British Dairy Show recently held in London, England. This show is open to exhibitors throughout the world.

Well Known Beekeeper Passes On

A ARON COPPIN is gone. A telegram advises us that he died on Sunday morning, November 17. One after another of the old landmarks are falling. Coppin lived to a ripe old age and enjoyed the friendship and respect of a wide circle of friends.

He was one of the outstanding beekeepers of Illinois. As a producer and exhibitor of fine comb honey he had few equals and no superiors. For twenty-six consecutive years he won the blue ribbon on comb honey at the Illinois State Fair, and this alone marks him as an unusually efficient man in his field. We hear much in these days of master craftsmen in various lines. Aaron Coppin was a master beekeeper. Specializing in the production of fancy comb honey, he aspired to perfection and came as near to it as humanly possible to do at this time. By means of a plain, split section and full sheet of foundation, he eliminated irregularities.

He was fortunate in the fact that Mrs. Coppin was equally enthusiastic about bees and worked with him in the preparation for the crop and in getting the product ready for the market or the show room.

For forty-seven years Aaron Coppin has been a beekeeper, although during the early years of his experience he earned his daily bread by work in the mines. Gradually he built up his apiary until it was sufficient to provide support for his family, when he gave up his position as mine inspector and has since devoted his attention entirely to his bees. As long ago as 1892, when

the World's Columbian Exposition was held at Chicago, fancy honey was the output of his apiary and much of the honey shown in the Illinois exhibit was produced by his bees.

His success came from intensive rather than extensive methods. Never did he aspire to operate a large number of colonies. Rather did he produce a high quality product which brought a premium in the market.

The home and apiary have long been recognized as a model for neatness and arrangement. Beekeepers have long loved to visit the Coppins and have gone away with renewed enthusiasm for beekeeping.

By clever display of his hives, he induced the public to buy his honey, and by means of inexpensive suggestions he advertised his product in a most effective manner. The arrangement of growing plants to outline the words "Honey For Sale" was so unusual that few could pass by without attention.

A worthy man has gone from among us. He excelled in his business; he loved his work, and he enjoyed the fellowship of his friends. The world owes much to such as he.

F. C. P.

Bears Destroy Bees

Beekeepers in Elk County, Pennsylvania, appear to have been particularly unfortunate in their contacts with bears this fall. Newspaper reports indicate that seven have already filed claims, which have been allowed by the state for damages to their bees by the bears.



Aaron Coppin and Mrs. Coppin in the apiary at Winona, Illinois



Established by Samuel Wagner in 1861

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The California Foulbrood Law

We are receiving protests from a number of California beekeepers against the viewpoint expressed by Mr. John Gray and a few others on the California foulbrood law. A protest signed by a number of beekeepers will be published in our next number. But we have felt that it was well to give expression to any differences of opinion, so that the average reader could realize that there is no partiality in this matter.

The Corn Sugar Fight

Our beekeepers may expect another fight at the coming session of Congress, regarding the corn sugar question.

If corn sugar was as good as cane sugar or beet sugar, they would not be so desirous of selling mixtures of it without mentioning its name. The reason why the corn sugar people wish to hide its name in selling it is not far to seek. They know it has no sweetness; they know that even house flies immediately discover its low value, since, if one places a handful of it on a table side by side with real sugar, those flies will immediately congregate on the real article.

Why are people so desirous of selling this sugar as good sugar, hiding it under the sweetness of real sugar? Because it is cheaper and they can make money by selling it thus. Should this be permitted, when we have a pure food law which has been in force some twenty-three years? Evidently not.

The "Outlook and Independent," in its November 20 issue, contains a long article on this subject. The price of that number is 15 cents. Those of our readers who do not get this magazine should send this amount to "The Outlook Company, 120 East Sixteenth Street, New York City," for a copy of that issue. They will find it interesting and will realize that some teamwork must be done in order to stop the speculative work of those who claim that they are trying to help the farmer sell his corn.

Our beekeepers should keep awake and write to their senators and representatives in Congress to protest against any meddling with the Pure Food Law. If corn sugar is as good as the adulterators want us to believe, they should sell it under its real name.

The addition of unlimited quantities of corn sugar to our real sugars would do great damage to the honey industry. Keep awake, boys, and work against it.

Passing of the Pioneers

Elsewhere in this issue we record the passing of Aaron Coppin, one of the well known bee men of Illinois. One by one the older men pass away and younger men arise to take their places. As the "Old Timers" are removed from our midst we are reminded that radical

changes are taking place in the beekeeping industry. Men of the younger generation are more interested in large scale production, efficient apiary management and successful marketing than in the life and habits of the insects by whose labor we live.

The trend of the times is indicated by the kind of material which appears in the bee magazines from month to month. Control of disease, marketing of the crop and short cuts in production occupy the thought of present day beekeepers. Few of the older men were large scale producers. While they lived from the sale of honey, yet they found so much of interest in the bees, their lives and habits, that their conversation was more likely to turn to subjects of behaviour than to commercial aspects of their trade.

Those of us who remain honor the memory of the pioneers who have developed our craft. They have given us a heritage of high ideals, clean living, and enthusiastic leadership. Let us strive to do as well, that we may likewise leave behind us a record of well spent lives.

New Forage Crops

The United States Department of Agriculture is still looking for new forage crops worthy of introduction into the United States. The importance of this work to the beekeeper is perhaps as great as to the farmer, for whose benefit it is directly intended.

Our most important sources of nectar all came from abroad, and with few exceptions they are important because they are grown in large acreage for forage. Sweet clover, alfalfa, alsike clover, and white Dutch clover are examples. Had these plants not been introduced to American agriculture it is difficult to imagine what our beekeeping industry would have been today.

Perhaps the Government agents may yet find other valuable forage plants which will prove to be good sources of honey also. There are many farming areas where no satisfactory legume has been introduced into the farm rotation. When we remember what a transformation sweet clover has brought to the Dakotas it is not too much to expect that similar changes may come to other regions by the introduction of a legume equally well adapted to local needs.

Production Moves Westward

There have been some very interesting developments in the markets for produce in recent years. More and more does the eastern producer feel the competition of the man from the West. Apples, eggs and lettuce from the Pacific Coast are active competitors for the New York market, and other commodities promise soon to offer similar competition.

To overcome the handicap of the long distance from market, the western grower must produce in large quantity to reduce his cost per unit; he must grade carefully and pack in an attractive package so that the consumer will be willing to pay a premium for his offering.

During the past summer fresh peas were shipped by express in iced cars from Washington to New York City. They were thirteen days on the way and the freight was about \$1.75 per crate of nearly two bushels. It is re-

ported by the *Rural New Yorker* that as many as eleven cars of these western peas arrived at New York in a single day. The selling price was from \$5 to \$7 per crate, which left the grower a net profit of from \$1 to \$3 per crate above the cost of growing, packing and shipping.

The man near the market has an advantage in the saving of freight rates, but unless he meets the present day demand for carefully graded and packed products he will find it hard to hold his own.

Western bee men are in position to secure large yields of good quality honey, but they must learn a lesson from the apple and produce growers if they make the most of eastern market opportunities.

Selling Through Advertising

Current magazines are marvels of the printer's art. A recent issue of a well-known woman's publication contains 184 pages and claims 2,550,000 paid subscribers. Considering the usual average size of families, about ten million people live in the homes where this issue goes. Dozens of different products contend for the attention of the housewife who buys for this immense group.

The writer spent an evening comparing these advertisements and trying to learn something from them. The most striking thing is the way in which color is used to attract attention. Soaps, utensils, furniture, food, clothing—everything for the home is advertised.

Thirty-two pages are used for advertising food products alone. Of these, twenty-one were full pages in color, including such a variety as peas, corn, beans, tomatoes, raisins, milk, coffee, grapanuts, cocoanut, puffed wheat, walnuts, and spaghetti.

The thing which offered the greatest surprise was the fact that distributors rather than producers are paying for this advertising. Only raisins, walnuts and beans appeared to be advertised by the association of producers. All the rest were presented by packers or manufacturers interested in building good will for a special brand.

A vain search was made for a word about honey. No advertiser felt it worth his while to offer our product, or even to mention it incidentally along with his own, as so often happens in suggesting combinations for use with a specialty.

When the big distributing agencies include honey, our marketing problems will be solved. They will furnish a dependable market and they will keep the public interested in using it as they do so many other foods. Until then our outlet is uncertain.

More Sugar

Reports indicate that the consumption of sugar in America reached the enormous total of more than 6,500,000,000 pounds in the first six months of 1929. This is said to be a per capita increase of nearly five pounds over the same period of last year. Just how we are able to consume such quantities of sugar nobody seems able to explain, but the fact is that we do.

In a country which consumed six and a half billion pounds of sugar in six months there should be no particular anxiety about finding a market for a few million pounds of such a superior sweet as honey. Those who engage in the wholesale distribution of food products insist that the whole difficulty with honey lies in the fact that there is not enough of it to arouse the interest of the big fellows. They say that if there was several times as much honey produced the large distributing agencies would take hold of it and push its sale in a way to surprise the honey producer; that sales would be easier and prices would average higher. Perhaps they are right.

Vitamin Content of Honey

In the *Journal of Agricultural Research*, September 1, 1929, appeared an article entitled "Vitamin Content of Honey and Honeycomb." Since the discovery of these elusive life-giving elements, which nobody seems fully to understand, there has been much search to discover the foods which contain them. In the above article Hilda

Black Kifer and Hazel E. Munsell, nutrition chemists in the Bureau of Home Economics, review their experiments to determine to what extent vitamins are present in honey. They conclude that honey contains neither vitamins A, B, C or D, in important quantity. They do mention the fact, however, that honey gives good results in the diet, especially in infant feeding. Let us hope that investigation will be continued until we are fully informed as to just what are the important qualities that make honey a valuable food.

Wintering Questions

Some of you may have delayed too long in preparing the bees for winter, and you may find some colonies short of stores, or at least without sufficient stores for living through the cold weather. In the middle and northern states it is too late, in December, to do any feeding of syrup or honey. But bees may be fed with candy, placed right over the brood cluster, especially if located in the cellar. The candy, made in the usual way, should be laid flat over the brood frames.

Winter snows are damaging, if the snow is wet and freezes in a cake over the hives. But soft snow, falling in large amount and burying the hives under a thick blanket, is perfectly safe and shelters the hives better than anything else, until a thaw comes. At that time the entrances should be cleaned so that the outgoing bees will not fall into it. We have often seen snow so heavy that each hive only made a lump under it, indicating its location. Bees may spend two months under such a blanket without damage, when the snow is not packed into a cake.

In cellar wintering, the important thing is to make sure that the temperature is right, neither too high nor too low. Grandpa Charles Dadant usually visited the bee cellar about once a week, examining the thermometer fastened to the cellar door. He used to say that about 45 degrees was the best temperature, but that this might vary a little. Let the bees tell what suits them best, by their absence of restlessness. At the proper temperature a cellar containing a hundred colonies or more is almost absolutely noiseless, the slight contented hum of the bees being hardly perceptible and resembling the almost noiseless swish of water on a distant shore.

A Visitor from Manitoba

We have just had the pleasure of a visit from Mr. L. T. Floyd, the official apiarist of Manitoba, located at Winnipeg. Mr. Floyd was on his way home from a visit to Alabama, where he had been called by the State Beekeepers' Association.

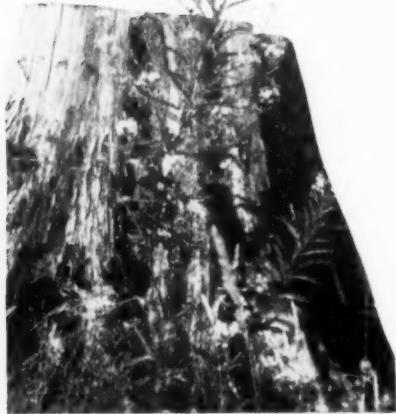
The beekeepers of Canada use large numbers of packages of bees from the southern United States. The number runs into thousands and will keep increasing, for Mr. Floyd says that bees received at Winnipeg and put upon combs partly filled with honey breed much faster than home-wintered bees, even when the latter have wintered safely.

Mr. Floyd compares the transportation of bees from the South to the North with the migration of birds. After spending the summer in the North, birds fly to the South for winter. In spring they return, sometimes before the snow is all gone, and begin breeding with incredible alacrity, so that some races of birds produce young which not only develop fully, but breed also before it is time for them to leave on their annual migration southward. So the bringing of bees to the North is simply an artificial migration which causes the bees to work with more vim than they do in natural conditions. The northern apiarists find that it is more profitable to kill off their bees in the fall, before they begin consuming their stores, and replace them with package bees from the warm South, than to try to winter them in cellars or in the rigorous climate of the provinces north of the United States and west of the Great Lakes.

Manitoba, which twenty years ago was not thought to be of any possible advantage as a honey-producing section, is now a first-class honey yielder, owing to the sweet clover imported into the province. The yield is thousands of tons.

The Kingbee of the Humptulips

By Natt Noyes Dodge



Fireweed is the queen of Northwest honey plants

FORCED slowly backward by the plow of the "stump farmer" and by the gradual retreat into the rugged foothills of the logging operations which, by its very nature, it must follow, the fireweed, famous honey plant of the Pacific Northwest, is gradually giving place to the more common nectar producers, the clovers, berries, and other plants of cultivation. Among the most heavily fortified of its strongholds, and one in which its legion of flame-tinted blossoms is destined to wave in glo-

rious profusion long after the alders and braken have crowded it from less favored regions, is the Olympic Peninsula of western Washington. Here, where the headwaters of the Wynoochee, the Wiskah, and the Humptulips, the Queets, the Skokomish, and the Hoh are still protected by forests of virgin cedar and fir, where the deer, elk, and bear roam unmolested, and the shrill toot of the "whistle punk" and the reverberating crash of a falling monarch of the forest have never echoed through the stillness of the woods, lies the future fireweed pasture of the North Pacific Coast.

Even now engineers are surveying a route from Aloha to the Hoh River for a railroad which will "open up" this lumber land (see accompanying map), and within three years fresh timber cutting activities will be in progress, and, with the burning of slashings and debris piled in the wake of axe and saw, foundations for new fireweed pastures will be laid.

Approximately half way between the thriving city of Aberdeen, famous lumber center of southwestern Washington, and beautiful, wild Lake Quinault, tourist Mecca of the Peninsula, is the sturdy cabin home of Fred Brittain, veteran bee man of Grays Harbor County. Here for ten years his bees have roared through the misty Washington summers, colo-

nies of immense strength because of the long, warm springs with their steady nectar flows from salal, the maples, cascara, and the wild berries. Logging operations with their following burns have provided an immense pasture of the luxuriant fireweed, and the reputation of the clear, mild honey from the Brittain apiary has spread the length and breadth of the county.

Fred Brittain is a large man; tall of stature, big of heart, and broad of mind. As is the nature of many big men, he is modest to the point of shyness. His crops, sometimes averaging more than two hundred pounds to the colony, are due entirely to the fine location; any man with the same pasture might have done as well; the "breaks" have all been in his favor. Thus he explains his success as a honey producer. But there is a story behind these simple statements.

Fred Brittain knows bees. His self-deprecating remarks lead the listener to think him a novice with a wonderful run of good luck, for it is his nature to let the other man do the boasting while he keeps his own council. However, once he becomes engaged in an argument in which the finer points of beekeeping are under discussion, the listener will begin to realize the depths of observation and keen thinking of which this man is



A typical western Washington apiary surrounded by hundreds of acres of burned-over land, carpeted with blossoming fireweed

capable. Ideas, to him, are theories until proved. Once established to his satisfaction as facts, he puts them into immediate practice. So has it been with the bees, for it is the bees that gather the nectar, and in the cool, moist climate of the Peninsula, breathed upon by the misty winds from the nearby Pacific, there are many days of spring and summer when the less hardy strains of bees prefer to remain within the shelter of the hives. "Front porch sitters," Mr. Brittain calls them, and at once proceeds to weed them ruthlessly from his yards. For years he experimented with various strains, purchasing queens from breeders the country over, and, although he has achieved success, as his enormous crops testify, he is still on the lookout for a better bee. Because of their superior hardiness and their refusal to allow cool, cloudy weather to interfere with their out-of-door labors, Mr. Brittain prefers the darker strains of Italians, popularly known as the leather colored. Not all of these are both prolific and industrious, so he is constantly weeding—selecting and discarding in an effort to maintain the highest possible standard of production among his entire four hundred colonies, three hundred of which are kept together in one yard, the home location.

Fred Brittain's ability as a bee-keeper is not, strange as it may seem, the characteristic which makes him a leader among the Peninsula bee-

keepers, although his counsel and advice in matters of honey produc-

tion are sought by bee men from miles around. This is but a mark of confidence and esteem with which he is held. He does not, as many, look upon other beekeepers as competitors, but regards them as colleagues interested in the same method of making a living, striving for the same goal, hoping for the same reward. Because of this attitude, in which he is most sincere, it has been possible for him to accomplish much in which other men have failed.

For some years after Fred and his brother, Charlie, first established bees in the valley of the Humptulips River, fortune smiled upon their efforts. Hundreds of acres of cut-over land carpeted the hills with fireweed, and the citizens of the towns and villages of the county furnished a ready market for the honey. But gradually



Olympic Peninsula, showing proposed railroad from Aloha to Hoh River. X marks Brittain apiaries.

keepers, although his counsel and advice in matters of honey produc-

Crop Record of Fred Brittain Apiary

Year	Spring Count	Yield	Colony Average
1918	cut first bee tree		
1919	4 colonies	1,350 lbs.	337 lbs.
1920	25 "	8,000 "	320 "
1921	72 "	9,000 "	125 "
1922	150 "	30,000 "	200 "
1923	194 "	32,000 "	165 "
1924	232 "	48,000 "	206 "
1925	260 "	50,000 "	192 "
1926	281 "	72,000 "	256 "
1927	350 "	18,000 "	51 "
1928	270 "	34,000 "	126 "
1929	425 "	all in excellent condition.	



A typical bit of logged-off land where fireweed now flourishes. Maple, alder, hazel, and willow are helping the braken crowd out the glowing nectar producer



Corner of home apiary. Over three hundred colonies in one location



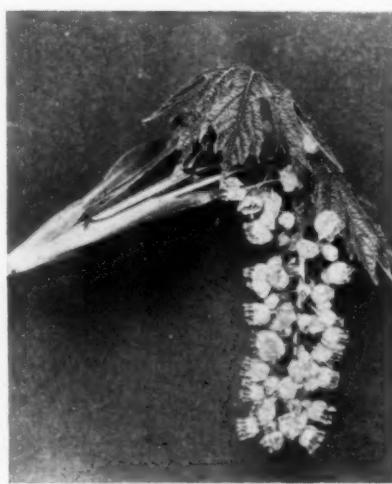
Fred Brittain hiding behind a skyscraper



Wild blackberry is a prolific nectar producer



Salal is a valuable nectar producer



Oregon maple bloom

more and more beekeepers began to locate in the vicinity, drawn there by the stories of the wonderful fireweed pasture available. Fred did not resent their coming, but welcomed them to this land of plenty. As the population of the region increased and the potential buying power of the centers grew, honey from other sections found its way into the grocery stores of the towns. Prices slumped until even the immense crops of the Brittain apiary returned little profit. Instead of blaming other beekeepers, or wasting energy in fighting the importation of honey, Fred Brittain began to think. He knew the possibilities of the Peninsula as a honey-producing region, for with the hundreds of square miles of timberland awaiting the logger's axe, and the thousands of burns yet to be made, it would be many years before the vast fields of fireweed faded from the hills. The problem, then, lay in finding an outlet for the ever increasing crops of honey which future production would bring.

In western Washington and northwestern Oregon are five of the major cities of the Northwest: Portland, Olympia, Aberdeen-Hoquiam, Tacoma and Seattle. Here was a vast market for the minty-flavored, white fireweed honey of the Peninsula, but one man with his relatively small crop could not expect to enter this market in competition with the carloads of honey brought in from the Yakima Valley and from the vast alfalfa and sweet clover sections of the Rocky Mountain states. It was in 1926 that Fred Brittain conceived the idea of forming a cooperative marketing association among the beekeepers of Grays Harbor County. With the assistance of his brother, Charles, whose experience in the lumber in-

dustry had developed a keen business judgment, and because of the trust and high regard with which he was held among the beekeepers of the Peninsula, Fred Brittain succeeded in organizing the beekeepers and establishing the Western Washington Beekeepers' Association, with headquarters and bottling plant at Aberdeen. Charles Brittain was appointed as its manager. Many other names, such as William Cox, John Walker, Fred Mandary, Helen Steiner, A. R. Ovencell, Julian Joubert, Charles Schader, H. N. Paul, and W. H. Higgins, many of them outside of Grays Harbor County, have become well known in the organization, which soon outgrew its quarters in Aberdeen and in August, 1927, established a bottling plant in the heart of Seattle's wholesale district. As the association gathered strength and other leaders came forward to carry on the work which he had started, Fred Brittain was content to go back to his bee yards, where he enjoys wrestling with the problems of production, now that a channel "to the outside" has been opened for his crops and those of other beekeepers of the Peninsula.

In the spring of 1928, the Western Washington Beekeepers' Association affiliated with the Mountain States Honey Producers' Association. The Seattle bottling plant became known as the Pacific Slope Honey Company, sales subsidiary of the two associations. As manager of this company and as president of the Mountain States Honey Producers' Association, Charles Brittain has carried the family name high in the world of commercial honey marketing.

Each fall several truckloads of honey, the cases neatly marked with

the number "2," leave the valley of the Humptulips for the Seattle bottling plant and warehouse. Fred Brittain's honey is going to market. In the bee yard a tall, lank man clad in overalls leans against a hive and contemplates the results of the past season and prospects for the new as he looks over the hives ready for the evergreen winter of the Olympic Peninsula. Perhaps a neighbor beekeeper is visiting him, and he is telling in his slow, easy drawl of the passing of the fireweed and how, within a year or two, he will have to move his location closer to the firing line of the logging camps, where more recent burns have paved the way for the luxuriant growth of the ruddy queen of nectar-producing flowers. Few would think of this imposing man as the Kingbee of the Humptulips, and perhaps his retiring disposition does not give him a clear title to this imaginary position—he might be better termed the power behind the throne.

Swarming a Bad Feature in Florida

Swarming is one of the worst features of beekeeping in Florida. When a colony is without a laying queen they seem to go on the waiting list. They are indifferent to anything that can happen to them. Robbers seem to do about as they please, and so does the moth. Moth will get a strong queenless colony, but as soon as their queen begins to lay, all is steady work again. Whenever I notice any inactivity, that colony gets an examination and a new mated queen just as soon as possible. We don't lose colonies in winter here, but in summer they can be lost quickly from queenlessness, and swarming is the worst trouble of all.

Before coming here, I used the Modified Dadant hive enough to like them, so I am trying them out here. I find the best way to prevent swarming is to use a couple of Aspenwall frames, one on each side. This stops the constant presence of so much honey in the brood chamber.

Transferring into Dadant hives from the Langstroth eight- and ten-frame hives was a little bothersome at first. I find the most satisfactory way is to make shook swarms of them into the Dadant brood nest, put one super on the Dadant hive with a queen excluder, give all the Langstroth brood combs to another eight- or ten-frame hive, as the case may be, letting it stay there three or four days and then return the Langstroth brood combs to the Dadant hive, putting them on top of the super. After all brood is emerged, the excluder may be removed and the Langstroth hive and frames used as a super for the Dadant hives or as you may otherwise wish.

A. H. Pering, Florida.



A Bit of Christmas Laughter—With Plum Pudding

By Betty Bee

IT is said poets are born, not made. The same is true of school teachers, and I think of beekeepers, also. I know absolutely that my John was born a beekeeper, but I do not think I was. However, there must be something in this predestination theory, for my knowledge of beekeeping began at a very early age, and, as is customary with all well-regulated and properly reared beekeepers, it began with a bee tree. I remember it vividly, though it is so far back in the rosy memories of childhood that today it seems more like a very exciting and slightly distorted phantasy of a lively imagination. Still that, too, is in keeping, for lively imaginations are quite often characteristic of beekeeping in general, and bees in particular.

The youngest of a considerable group of grandchildren, I was the apple of my grandmother's eye and on every possible occasion was "borrowed" by her and allowed to enjoy every freedom and happiness of the old homestead and the innumerable privileges always extended by a doting grandmother to a favorite grandchild. Down at the far end of this old home farm lived a certain pensioner of my grandmother a man whose past, to us children at least, was veiled in mystery. He was a short, pudgy man, a veritable Santa Claus figure, with long, curly locks and flowing white beard, which would surely have been the envy of every sheik in the good old biblical days, and a shiny bald pate that, to me at least, was a source of constant interest and curiosity.

Often on long winter evenings he would wander into grandmother's and, in the twilight, regale us children with curious reminiscences of former days—stories to be remembered of ghosts and goblins, panthers and Indians that caused many a childish backbone to shiver and many a lamp to be lighted long before daylight had faded. Grandmother called him "Benjamin," which we children

shortened to "Uncle Bedgie," and I shall never forget the depth, vigor and intense reverberations of his voice, which could thrill or chill the blood of saint or sinner. Grandmother was a Quaker, and many a time I have seen her shake her head over some of Uncle Bedgie's fire-and-brimstone theories, for he was a religious exhorter and no baptism, revival or campmeeting within a radius of attending distance was quite complete without him. There in prayer, exhortation, or testimony, his great voice was always to be heard bellowing forth in supplication, justification or damnation, as occasion demanded, to the assistance of the pulpit, the sustenance of the mourners' bench and the terror of the backseaters.

He followed all these religious services with a zeal quite as intense as that of the average small boy who follows the clown at the circus, and I have heard it said one could determine the progress of the services by the volume and vigor of his supplications, for verily a Lord who would fail to hear Uncle Bedgie's voice must have been asleep or deaf indeed. Most of the neighborhood stood in great awe of Uncle Bedgie, perhaps, because of his signal attendance at the throne of grace, but my grandmother always seemed to regard him with dignified condescension and was absolutely unafraid and unaffected by this queer and noisy old man.

Only once did I ever know of her being influenced by his eloquence, and that upon one of my periodical visits at her home when I received my first lesson in beekeeping practices. It was a crisp, frosty morning in late autumn. Grandmother was making the Christmas mince meat and I remember I was helping her seed raisins, or at least I was supposed to be helping, when, with the usual noisy shuffling and halloping, Uncle Bedgie appeared at the kitchen

(Continued on page 594)



Institute at Industrial Exposition

Mrs. Inez G. Richardson, secretary to Dr. Barnard, attended the fifth annual Industrial Exposition at Washington, D. C., to represent the Institute. She demonstrated honey and trained assistants to tell the honey story during the show. The National Sales Agency had charge of the honey exhibit for the Mountain States Honey Producers' Association and found Mrs. Richardson's suggestions valuable. The Institute also furnished demonstrator outlines and mimeographed material, sample honey nut date bars and display candy pieces.

Mrs. Richardson is most enthusiastic about the use of honey, and, although she first learned of it in food less than a year ago, when she came to Dr. Barnard's office, she is one of the best boosters we have. Her work with Dr. Barnard on the child health project brings her in contact with many food specialists and she always introduces honey combinations where she can. She also represented the Institute at the American Public Health Association at Minneapolis, September 30 to October 5, and at the American Dietetic Association at Detroit, October 7 to 10.

Kellogg Company Helps Institute

No representative was present at the National Dairy Show in St. Louis, but Mrs. Cornforth, of the Kellogg Company, one of Miss Barber's assistants, took care of material furnished by the Institute for that show, handing out honey samples and cooperating with the Institute and with Mr. Smith, Secretary of the Missouri Beekeepers' Association, in taking care of an observation hive.

Mrs. Cornforth also boosted honey at the National Restaurant Exposition at Louisville, giving out honey literature furnished by the Institute.

Institute Should Attend More Meetings in 1930—Can You Help?

The Institute will not always have Mrs. Richardson and the Kellogg Home Economic specialists to represent them, and yet the **honey story is worth telling at any meeting**. We can send a representative to six of the biggest national meetings, but the budget for traveling and space expense is not big enough to meet the situation. It is hoped that the mem-

bership committee can arrange so that beekeepers who are interested in the work of the Institute can help in providing funds for this work. The supply companies, manufacturers of glass and can container companies are doing their share. Some beekeepers are helping by donating honey, but the majority of them are simply folding their hands and wondering how long the Institute will continue, so they can sell their honey without having to include an advertising expense in their budget. Now we suggest that beekeepers help themselves by helping the Institute.

Follow Up the Work of the Institute

Beekeepers can follow up the work of the Institute by making personal donations to local domestic science teachers in the way that W. P. Mann, of Thurman, Iowa, has done. He has sent us a list of the domestic science teachers in his county, asking for samples of "Honey Helpings," which have been forwarded to them. Mr. Mann has given each of the teachers ten pounds of extracted honey to use in their demonstrations.

We feel like patting Mr. Mann on the back and saying, "That's the spirit." Unless beekeepers stimulate their local teachers actually to start honey experimental work in their cooking classes, the beginning which the Institute makes cannot mature. Many school budgets do not allow the purchase of "extras." Give them honey!

Beekeepers Are Buying "Honey Helpings"

"Honey Helpings," distributed to customers, are helping many beekeepers bring in repeat orders. Some beekeepers have ordered several hundred copies of different issues of "Honey Helpings." J. E. Crane & Son, of Middlebury, Vermont, write: "For use in our work, we would like 100 'Honey in the Bakeshop,' 500 'Honey Helpings' No. 4, and 500 'Honey Helpings' (basic suggestions), 100 'Honey Helpings' (quantitative formulas for restaurant trade). Please send bill. Mrs. Crane has made up some of your honey date bars and we hope to have other honey combinations prepared for use at the fair, together with salads, etc. Thanks for your cooperation." Other beekeepers can get helpings on this same basis.

A Bit of Christmas Laughter —With Plum Pudding

(Continued from page 593)

door with the startling information that he had come to borrow four wash-tubs, the yellow wagon and grandmother's own special horse, Brown Jenny.

Now, no one ever drove Brown Jenny except grandmother. Brown Jenny was "sacred" to her. Not even granddad ever used this horse; but with considerable argument and no end of lung power Uncle Bedgie insisted that no other horse in the neighborhood was sufficiently gentle or quiet or "stiddy"; that he would drive her "like a lady"; that his "proven" must not be shaken—all delivered in a voice that by its very volume would have daunted a stranger. It seemed absolutely necessary that he should have this identical horse at this time, together with grandmother's four tubs and the yellow wagon, to carry home the "proven." What "proven" was I could not imagine, but I inferred it must be something most precious and fragile, and I listened with all my childish ears, which was really quite unnecessary, since anyone could have heard his side of the conversation to the end down-pasture.

Finally, perhaps because she was busy, perhaps because of the very volume of his argument, grandmother reluctantly consented, with the stipulation that Brown Jenny was to have every care and, with the yellow wagon and the tubs, be returned before noon. Uncle Bedgie departed with numerous thanks, and grandmother, with thoughtful eyes, went on with the raisins, after carefully explaining to me that Uncle Bedgie had "cut a bee tree" where wild bees had stored up some honey.

Of course I knew what honey was, but my vivid and childish imagination, stimulated by Uncle Bedgie's oratory, pictured such a gigantic and unusual procedure that I was wild to go and see it; and since grandmother, like all other proper grandmothers, never was known to refuse a wish of mine, we finally put on our hoods and jackets and, following the lane to its end and plunging into the thicket surrounding the old timberland beyond the down-pasture, came upon Brown Jenny placidly dozing, while at a considerable distance, periodically hidden by a dense smoke screen, we saw Uncle Bedgie's queer, plump figure, completely muffled in what I have since learned is the regulation uniform of every full-fledged beekeeper, laboriously conveying queer looking "somethings" into grandmother's wooden tubs. For a better view, grandmother and I climbed upon a fallen tree trunk, where she called to him to "get all the bees off," but his reply was lost

in his muffled garments and the smoke screen, though his deep voice reverberated to us as a sort of indistinct thunder.

We watched him for what seemed to me a very long time and my disappointment and disgust increased. I had expected something most unusually interesting and worth while. Then, much encumbered by his draperies and the rotundity of his belt line, Uncle Bedgie began, with many tugs and groans, to lug grandmother's tubs toward the yellow wagon. Once more she called to him to "brush off every bee," and this time his reply came quite distinctly that "it ware too cold for airy bee to pop his head up." With a thud, tub number one was placed in the yellow wagon, followed in due time by tub number two, and Uncle Bedgie, his foot on the step, reins in hand, preparatory to clambering into the seat, in his best campmeeting voice told grandmother something to the effect that "taint airy bee kin fly on sech cold, frosty mornin's," when something happened. In fact several somethings happened, and all at once, too. What had a moment before been a gentle, placid, kindly, sleepy creature became in a wink of the eye a rearing, pawing, kicking, snorting mass of equine insanity, and before grandmother could more than gasp for breath, her horse, this ideal family mare, this gentlest of beasts, evinced more temper and vigor than ten demons, plunging, kicking, biting, squealing, and, with the tubs, cart, and "proven," all rapidly disintegrating in the distance, vanished, leaving a cloud of dust and flying debris behind.

After what seemed an age to us, from the dust and debris gradually and unsteadily appeared a rotund and disheveled parcel of humanity which slowly brought itself to a sitting posture. Breathless we waited, too frightened to move, but relieved to see Uncle Bedgie at least sitting up, and tearing off his offending equipment frantically. Grandmother called to know if he was hurt. Considering his corpulence and the suddenness of his descent to Mother Earth, his answer came to us, in gasps to be sure, but promptly and with emphasis, far reaching and stentorous. It came, indeed, like a breath of hot steam, vigorous and deadly, direct from the inferno itself. Such language I had never before heard, and I sincerely hope I shall never hear again. Horse, wagon, tubs, bees, "proven," all received their full share of his oratorical upheaval. Grandmother covered her ears with her hands. I hid my face in her skirts; but the flow of frenzied oratory continued, a vocal tornado such as will surely never again be heard in all that quiet country around, and delivered in tones such

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A Glance Through the South

By Jes Dalton

Package Problems Discussed at Montgomery

The recent meetings at Montgomery, Alabama, were very well attended in spite of continuous rains. They were held in the Jefferson Davis Hotel. Practically all the time was spent in discussing phases of the package bee and queen industry.

Mr. L. T. Floyd, Provincial Apirist of Manitoba, was the principal speaker, and he brought out many interesting points in relation to the receiving of packages. I was surprised to hear the interest that the various shippers had in the actual condition of bees on arrival at Canada. Mr. Floyd stressed the fact that extreme care should be used in complying with the customs regulations, and also that the shippers should use every means possible to prevent bees arriving in the customs on either Saturday or Sunday.

Following the meeting, Mr. Floyd, in company with Dr. Whitcomb of the Southern States Field Station, Mr. Atchison, Mr. Cutts, and Mr. Ruffin of the University of Baton Rouge, visited the apiary of Jasper Knight and Cutts and several of the other shippers in the vicinity.

There was a splendid spirit throughout the meeting at Montgomery, and it will go down as one of the high spots in our Southern Conferences. Officers for next year are: W. E. Harrel, President; Paul Cutts, Vice-President; and J. M. Robinson, Secretary-Treasurer.

Comments on the "Monkey Editorial"

Although I rather dislike anything in a bee journal that is not near enough to be linked up to beekeeping, I was profoundly hit by the editorial at the bottom of page 537 of the October number. It actually startled me. Quite a few times in the past year I have had a sweet little boy, five to eight years old, intelligent and bright looking, come and throw a toy pistol on me and, looking over the sights, seriously and briskly command, "Stick 'em up!"

This performance usually highly amuses all who look on, especially the parents. In me, however, words would not express the horror of the whole thing. The parent taking the child to shows of this type and bringing it home and giving it such a toy and approving the action, is bad business. I may have a very morbid slant on the whole thing. Possibly it was better to have the child amusing itself this way, but it certainly

looks to me like education in the wrong direction.

I never could believe that a parent who would allow a child to amuse itself in this way had though very deeply on the problems that will confront it when it reaches an age where society will hold it accountable.

Honey in Ice Cream

Ever since I have kept bees and produced honey, I have used honey in ice cream and boosted its use in this way. I have tried to interest beekeepers and publications in it, especially since the great campaign for pure and natural foods. In ice cream, honey, eggs and milk or cream make a combination to conjure with. Also, since prohibition, when sweets are supposed to take the place of alcoholic drinks, the field is wider than before.

A few years ago I looked over references on this subject and found that over thirty state colleges were giving instructions in making homemade ice cream. An economic feature I have never seen stressed is the bulk displacement or comparative filling of honey and sugar. For your own enlightenment, take a vessel of liquid, which we will assume is raw ice cream ingredients. Have the dish level full, exactly to overflowing, and set the dish in another one to catch the overflow. Then very slowly, so that it will dissolve, pour in a cup of dry sugar and watch the small amount of liquid this cup of sugar displaces. Try the same thing with honey and you will find that the sugar you used for sweetening added almost nothing to the bulk, but the honey added the same amount of bulk that you actually put in.

Multiply this by a few tons of ice cream, sweetened with sugar or honey, and you will find a gain in bulk in favor of honey that will astonish you. I have never seen this point mentioned in a bee journal in favor of honey as a sweet.

The consideration of honey in ice cream should be added to the other advantages of the campaign for natural health foods. This is all brought to mind by the editorial on page 537 on "Honey and Ice Cream" concerning the work done at the Illinois Experiment Station.

I see also that the American Honey Institute is working on one angle of the problem. This is indicated by the report on page 571, November, which mentions a thirty-page recipe booklet entitled "Frozen Desserts,

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Swiss Dairy and Bacteriological Station, Liebefeld-Berne

The Microchemical Laboratory of Beekeeping

By E. Elser, Scientific Assistant of the Swiss Dairy and Bacteriological Experiment Station, Liebefeld-Berne.
Director: Prof. Dr. R. Burri

THE winter has turned up once more. Snow is again covering our country. The extractors are resting and the filled honey containers are stored in well-ordered supply chambers. But the reserves must not lie there too long. They must dispense health and wealth wherever they are sent. Children and convalescents will get the most out of it if they eat the honey with a relish, and it will do them, as well as the beekeepers, a lot of good.

But the honey must be pure and of one's own country; that is to say that no substitute is good enough, that only the real product of the bees is the safest and best. That is why we are working against substitutes and imitations with all the remedies that are at our disposal.

The picture below will give you an idea of the special laboratory of this kind, that has emerged lately beside the laboratory for bee diseases at Berne-Liebefeld, Switzerland. The former is for the purpose of investigating beekeeping products through the chemical methods and its proceeding. The following notice is to explain, in detail, how much has been learned to date with micro-chemical methods.

Let us spend a short while with the honey. There I found methods that partly were useless, partly so old that no one could become interested in them. It is quite evident that such a delicious and precious nourishment as honey requires the most refined kind of investigation. As we know, several similar ingredients compose the honey; for instance let me mention glucose, fructose, cane sugar and dextrin. Then comes protein in very small quantity, then the salts, phosphoric acid, iron, man-

ganese, calcium, each of them in small traces only. Further, good honey must contain strong ferments, of which we know three.

It was partly the first duty of chemistry to try the different methods to find each individual component, as it was necessary for them to help us to find the composition of honey so as to be able to recognize adulterations and imitations. That was careful work and required the utmost precision.

It is often easy to recognize substitutes, but to find the traces of refined adulteration only the expert has the capacity to pass judgment. I mention only artificial honey and honey obtained by feeding the bees with sugar. It is not always the bee-keeper's fault; very often the bees themselves are the criminal factors. The following will give you an example:

The cells of a honeycomb were full of ripe honey which was already partly sealed. The beeswax and the honey presented a fancy picture. Parts of it were red colored, others yellow, others again showed a mixture of orange. After the honey had been extracted it looked odd-colored, brown-red. The smell of it was not very aromatic, the flavor of it was like syrup. The chemical experiment found that the bees had been junketing near a candy manufacturing plant.

On another occasion we had honey from bees that had gathered remains of sugar, close to a burnt-down sugar refinery. Of course, the honey smelled bad and its taste was quite disagreeable. An eminent Swiss bee chemist cleared the question and its cause.

In the year 1912, at an exposition in Flensburg, near Hamburg, a honey of mouse color (gray) caused much attention, and on investigation by Reese and Drost the honey was found to contain a large quantity of soot, which caused the very abnormal color.

The problem of the Noorshoney in Africa is of considerable importance for that country. The honey from Euphorbian plants has a taste that leaves a burning sensation on the tongue for many hours afterwards. Many thousand kegs of it are gathered every year in the south of Africa, but it is practically worthless.

The examples given above are more or less harmless; but at least it shows where the trouble lay and the bees were not damaged from it. More difficulty was occasioned where the bees had to be fed with sugar, but we must say that this was seldom. Other analyses, as you will see below, explain some kinds of sugar honey.

Please remember that it was not possible formerly to detect chemically adulterations due to feeding with sugar. We know that the bee is able to produce from sugar-water a kind of honey which in its own composition is very similar to real honey. It contains the same quantity of glucose, fructose and cane sugar. The dextrin and the ferments are there equally. It is marvelous how the bee can produce so many components out of cane sugar. This, we must not forget, relates only to sugar and ferments. But salts are also present in quite known quantity. All my experiments of sugar feeding proved that it is impossible for the bee to

gather the normal quantity of the individual salts.

Pure honey contains only c. a. 0.3 per cent salts. Everyone will understand that it was no little work for the chemist to find, in such large quantities of sugar, the traces of salts. With the help of new methods and after many years of study, we determined microchemically the salts in honey. We find, for instance, in 100 g. of pure honey 60 to 100 mg. phosphoric acid; in sugar-fed honey, only 5 to 10 mg. Therefore the difference is very great and can undoubtedly be recognized in honey. Honey contains also salts respectively derivates of salts. I mention phosphoric acid, iron, manganese, calcium, etc.

If a beekeeper would try to feed his bees with salts, it would be dangerous, and the ash of honey is so very complicated that it would be impossible for him to get the proper concentration. A few practical examples will better explain the value of these modern methods.

A typical honey resulting from sugar feeding had been sent to me from a notable beekeeper. The bees had been fed with a mixture of sugared water and a solution of enzian roots. Owing to the bitter taste of the honey, the beekeeper sent it to me for investigation. The honey was, as regards sugar content and ferments, perfectly normal. But after determining the salts content you could tell that the honey was nothing but sugar-fed honey, and that by no means was it fit to be sold. In the same way a foreign honey was detected as being nothing but sugar-fed honey.

As we mentioned before, these cases are luckily very rare. But it occurs rather frequently too that the bees get disease owing to the food

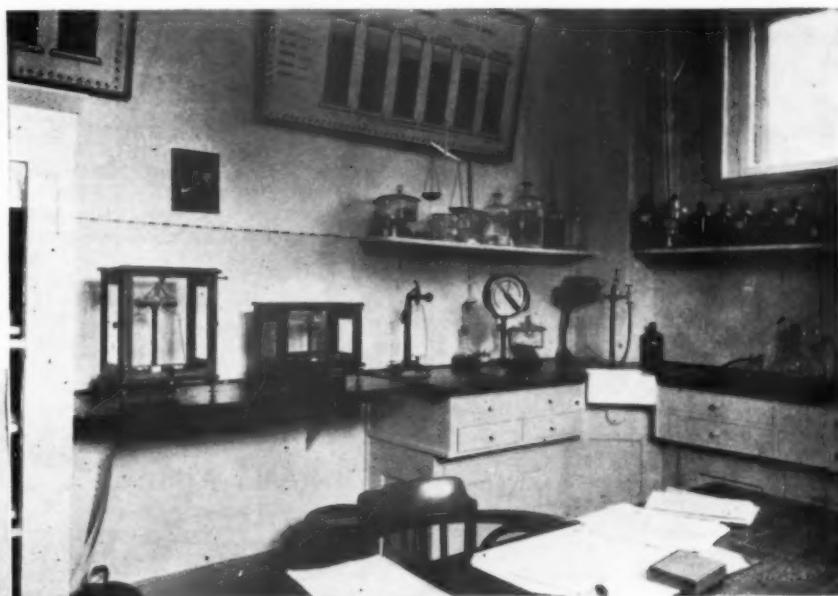
during the winter, especially now that in almost every country the beekeepers have started to feed the bees with sugar and salt solution. We all know that, since ever so much has been upset on account of the careless way of feeding with salts. Every beekeeper should take special care about winter food and notice how very important it is for all concerned to do it carefully. Experiments on my own bees have taught me that if we feed in a reasonable way and with the exact quantity of salt, they pass a very good winter. That it is very imprudent to feed the bees with any amount of salt, ignoring the proper quantity, will be given in the following example:

We received last spring a piece of comb and a few bees, as well as a little winter food, for investigation. The beekeeper had, during the last winter, lost twenty-nine colonies. He wrote us at the same time that he began feeding his bees, at the end of July last year, that he fed twice a week sugared water with the addition of 4 to 5g. of Glaubersalt. He did this a whole month, and at the end of August he added plain salt instead of the Glaubersalt. At first we investigated the bees' illness. There was no disease to be found, and

neither had the bees starved from want of food. We were told that there was plenty of food left in the hive when the apiarist found them dead; also that the honey looked normal. The taste was so bitter and salty that you could still feel it upon the tongue for many hours afterwards. It is no wonder, then, that twenty-nine stocks of bees died, and we are not surprised. The beekeeper made a great mistake by undertaking to feed all his bees on the same basis. Had he started his feeding experiment with about two or three hives, he might have kept most of his bees alive and would have profited by the experience. But in spite of all the warning, this same error occurs frequently. The same honey showed that salt (NaCl) was represented five to six times and the sulfate thirty times more than in pure honey. The ferments were only weakly represented.

In March, 1928, another beekeeper sent us bees and combs with the following declaration: Of sixty hives, thirty-five died last winter. After investigation for disease, we begged him to tell us how he fed his bees for the winter.

To 100 kg. sugar he added 70 lt. water and 1 kg. salt (NaCl), as well



Two views of the laboratory showing equipment for careful investigation, including thermostat, wax-centrifuge, determination apparatus, and scale balances for small weighings.

as a pinch of lime blossom. He boiled the ingredients and, after cooling, gave it to the bees. He began to feed at the beginning of August, until the end of September. The honey was quite normal and gave no occasion to think of the abnormality of the winter food. Even the composition of the sugar and protein corresponded to a good nourishment. Indigestive substances were not found. On the other hand, there was a large quantity of salt ($NaCl$), about five to ten times more than pure honey is supposed to have. The thirty-five hives had died. This example tells us quite distinctly how dangerous salt is for our bees. An overdose of salt is bad enough for people, but much more so for the finer organism of bees. Salt feeding for the winter must not be undertaken carelessly.

Another apiarist fed his bees with a sugar solution to which he added 20 per cent formic acid. He had read somewhere that this had been used with success, but was unfortunate enough to lose twenty hives from the fifty he possessed. The bees we examined had no disease, but the comb was spotted with traces of dysentery.

Scientific experiments and methods showed us where the trouble lay and where the abnormality of winter feeding was. Through degustation we could only determine a normal food. But there was twice the quantity of acid in this product. It was evident that such a large quantity of formic acid mixed with the food could only be harmful to the bees, and easy to recognize that they died of this cause. But we had another case where a beekeeper used sulfuric acid to invert the cane sugar. He lost all of his bees, too.

The bees are sometimes guilty, if a normal honey is being produced, conditions occasionally forcing them to it. For instance, we received not long ago from Germany a very liquid and dark honey sample. This product had occasioned a great mortality among the bees. My investigation was limited at first to degustation. The flavor was similar to tar, and the taste very disgusting. I put it aside with the intention of determining it chemically, later on, and was greatly surprised a few days afterwards to find that sediment had settled at the bottom of the glass that could not be crystallization of the sugar, the honey being so very liquid. On the other hand, the precipitation was so fine that it could not be composed of sugar crystals. Positive investigation showed that this precipitate consisted of very small arenaceous quartz. They were so very small that even 500 x enlarged they seemed 2 to 4 mm. long. The bees had been gathering honeydew that had been flowing largely at that time and, owing to the

rain, had dropped into the street, taking up with it all the little quartz, which was indigestible, and the honey no good.

The combination of this honey seemed very interesting for me, and I undertook the investigation.

I determined the water first and found 25 per cent. The usual scale proves only 20 per cent. Invert sugar is usually 70 per cent. In this honey I found 48 per cent, 13 per cent cane sugar instead of about 8 per cent in normal cases. The fermentations were also strange. Only the diastase was normal. By analysis executed by my own method, 1 g. honey inverted within five hours 600-9 mg. cane sugar; 1 g. of this honeydew inverted in that same time 1770 mg. This is to say, double.

Through the modern methods we are able to determine any honey, and adulteration of honey as well.

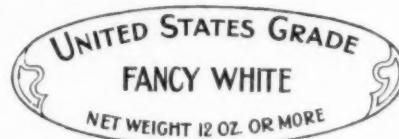
I hope to have explained how the chemist nowadays can assist the practical beekeeper and save him from many troubles.

The chemist has also a wide field for future development which extends more and more. I mention only honey—wax, pollen and the larval food investigations.

But we have to work mutually, the practical beekeeper and the scientist, for the ideals and future of our bee-keeping.

United States Grading Stamps Now Available

The illustration shown here pictures the Government grading stamp, which can be incorporated as a part of the honey label or used as a separate oval label on the container. As long as the grade stamp conforms to the general oval design, it may be made any dimension, provided it is in keeping with the style and size of the label.



When the stamp is used on glass containers, it is not necessary to state the color of the honey. Stamps for tin or other opaque containers shall state the color of the honey (e. g., as in the label above, Fancy White). If it is not desirable to incorporate the grade stamp in the original style of the label, as suggested in the picture, a blank space may be left in which to use a rubber stamp.

It is felt that the use of the grade stamp on retail packages of honey will give consumers greater confidence in the quality and purity of the honey. The grading rules for

extracted honey are very simple. Honey that has been passed through a double thickness of cheesecloth and allowed to stand a short time in a settling tank will ordinarily be clean enough to grade as Fancy, provided it weighs twelve pounds to the gallon, is of good flavor, and is free from fermentation or other objectionable qualities.

For comb honey the grading is a little more difficult, but it should be remembered that the production of comb honey is really an art, and therefore it is not to be wondered that the grading of comb honey requires more skill and patience. Circular 24, "United States Grades, Color Standards, and Packing Requirements for Honey," is available for free distribution. Write to the Superintendent of Documents, Government Printing Office, Washington, D. C. It contains a chart showing requirements for grades of honey and a circular on labels or stamps is included.

Red Clover Evolves to Meet Bees' Needs

The definite strains of short-headed red clover blossoms which are becoming established are the result of the gradual disappearance of bumblebees in sections of the country which have become intensely agricultural and the taking over of their task by the shorter-tongued honeybees, according to Harry F. Dietz in a recent publication on "Pollination and the Honeybee" issued by the Indiana Department of Conservation.

The long nectar tube of the red clover has heretofore made it practically dependent on the bumblebee for fertilization. Beekeepers have looked with longing at the amount of potential honey available in the red clover, but it was impossible to breed a type of honeybee which had a tongue long enough to reach the treasure. With the bumblebees going, red clover as a seed crop seemed doomed.

However, as the yield of clover seed lessened each year, a greater per cent of this smaller amount came from the occasional shorter tubed red clover blooms which short-tongued insects had been able to fertilize. As seed from these short-corolla flowers generally produced plants in their turn having the same kind of blossoms, the tendency was to produce a type of blossom which the honeybee can work. Though slow at first, the change has been hastened and the increasing yields of clover seen in the vicinity of apiaries seems to indicate that the red clover will eventually turn all its mating problems over to the honeybee.

Artificial Insemination of Queenbees at Ontario Agricultural College

By H. B. Disbrowe

NEARLY one hundred and fifty years ago the blind naturalist, Huber, made the first attempt to artificially fecundate a virgin queen. He introduced into the vagina of the queen, by means of a camel's-hair brush, a small quantity of the germinal fluid of the drone. Needless to recount, the experiment was a failure. Since that time numerous attempts to accomplish the same thing have been made and many different methods have been used. It remained, however, for Dr. Lloyd R. Watson to solve this vexing problem in 1926, when he first announced the successful instrumental insemination of a queenbee.

Great interest was displayed in this important announcement, and within nine months another American worker, using this method, obtained results which completely confirmed its success. Since that time Dr. Watson has supplied instruments to a number of experiment stations and individuals, so that it can be confidently asserted that a beginning has been made in genetical research of the honeybee.

It was in this connection that the Ontario Agricultural College secured a set of these instruments during the past season. The following paragraphs constitute a brief record of the success obtained by the writer in their use. The work this season consisted merely in an attempt to acquire the necessary technique to accomplish this delicate operation. The results themselves are not important except in this consideration.

The first queen to be successfully inseminated commenced egg laying on July 9. As she was inseminated on July 6, the intervening time was therefore less than three days, or, in other words, the same as though a normal mating had occurred. This queen laid steadily and filled all available space in the nucleus with eggs. The brood when sealed proved to be approximately 60 per cent worker. Unfortunately this queen was later killed by a virgin that emerged in the nucleus, so that there was no opportunity to observe her continued performance. An interesting feature of this first success was that the queen began to lay within three days of the operation. This was the first and last time such quick results were obtained; subsequent successfully inseminated queens waited much longer before beginning to lay. The only thing to which this can be attributed is beginner's luck.

On July 11 two more queens were successfully inseminated. The first of these commenced laying on July

18, seven days later. This queen quickly filled all available space and continued to do so until the latter part of September, when she was removed from the nucleus. Although it is difficult to estimate accurately, a visual comparison with brood combs from a normally functioning colony did not reveal the presence of more than a normal amount of drone brood. This queen represented the best result secured during the season and it was intended to winter her over in a full colony. She was accordingly introduced into a strong colony in a Jay Smith cage. Although every precaution was taken, the bees balled her when they were given access to the cage. For some reason she was not acceptable to the colony. It is perhaps too early to hazard an opinion, but it may be that these queens had best be wintered in strong nuclei.

The second operation performed on this date was not nearly so successful. This queen did not commence to lay until August 1, twenty days after insemination. In this case insemination was very low, not more than 2 per cent of the brood being sealed flat. It seems likely that the unusually long period between insemination and the appearance of eggs was probably due to injuries received during the operation. This queen continued to lay for some time, but her fertility decreased until finally only drone brood was produced.

In addition to those already described, two other successes were secured during the season. One queen inseminated on August 9 commenced to lay after an interval of seven days, while another inseminated on August 13 began after six days. In the first case insemination was approximately 50 per cent, while in the other it was low, probably not more than 5 per cent.

All of the queens used in the tests were reared by the Doolittle method and allowed to emerge in nursery cages. After insemination both wings on one side were clipped off and they were introduced into nuclei in ordinary mailing cages. Small strips of zinc queen excluder were nailed over the entrances to exclude the remote possibility of a queen mating outside the hive.

As previously mentioned, the above paragraphs are a record of the successes obtained during the season. In addition to these queens, however, numerous others were subjected to treatment, the results of which were entirely negative, although in nearly every case they were accepted into nuclei and remained there until re-

moved. Although no record was kept of the number of queens treated, it is believed that twenty-five would be the approximate figure. This truly is not a high percentage of success, but it is confidently expected that an improved technique will increase the number in future. But even under these conditions it is possible to obtain abundant material for genetical research. Consequently it is with considerable optimism that we are looking forward to another season.

A Good Introducing Cage

Jes Dalton sends us an ordinary queen cage with special preparation for safe introduction. Over the hole, in one end, he has fastened a small piece of queen excluding zinc. This permits a bee to enter while preventing the queen from escaping. For use he describes his method as follows: After running the queen into the cage, he closes the hole behind her with a plug of candy. No attendant bees are included. When placing the queen in the hive to which she is to be introduced, he smears a bit of honey and wax over the excluding zinc at the opposite end of the cage. This prevents the bees from entering at once and permits them to fill with the fresh honey as they go. Dalton writes:

"We have introduced them under glass. The bees slowly creep in, one at a time, full of honey. It takes quite a few minutes wallowing in the entrance before they get in, and then they wallow in and out. When the cage is full of bees they eat a hole in the candy at the other end before the queen can get out. There are no attendants to stir them up, and they accept the queen long before she is liberated. It takes from thirty minutes to four or more hours before the queen is out, but this is a big gain over the old mailing cage."

On page 329, July, 1922, Frank Moore mentions using a queen cage with perforated zinc too small to permit the bees to enter the cage, although permitting them to put their heads in. He states that the plan is the simplest of any he knows and that he had no loss from its use.

Honey in the News

A recent issue of the Jacksonville, Florida, Journal has an extended mention of the fact that Mrs. Rockefeller sent to Jacksonville for a special brand of tupelo honey which had been recommended to her. Anything which is done by prominent people is news, even to such a trifl as the purchase of honey for the table. Every-day folks can buy honey or molasses in Jacksonville every day in the year without the fact being noticed by the papers, but because a man of great wealth happens to do so arouses the interest of the readers of the papers.



This hive sits exactly on a gun platform. Behind are the works, with the children on another gun mount

Bees on the Earthworks at Old Port Hudson

By Jes Dalton

A FEW colonies of bees sitting quietly on the top of the parapet of the inner line of these earthworks offer many lessons for those who care to think. The immensity of the engineering can be slightly grasped when it is remembered that the old town and boat landing at Port Hudson were protected by three lines of earthworks lying in half circles, one inside the other. The outside or first line extended eight miles and rested on the Mississippi River. This was supported by a second line some distance behind, and again by a third or inner line at the extreme inside.

The work was laid out by the Confederate general, P. G. Beauregard. As one climbs over the works he will be stoical, indeed, if he suppresses remarks of wonder.

The lines follow the natural contours of the ground in such a way as to present an embankment from twenty to over one hundred feet in height along the first and second lines. A complete system of roads and passages permitted artillerymen and supplies to be shifted instantly from any point in the works to a point which might be endangered.

Every exposed point is flanked with natural and artificial protection, and after a period of nearly seventy years it is almost impossible to tell which works are natural and which were built artificially by slaves.

The way in which the engineer took advantage of the natural lay of the land reminds one of the old Negro scrubwoman on duty in the shop of the sculptor, Borglum, who, on seeing him start work one morning on an immense block of granite and the next day observed the finishing touches on the bust of Lincoln, burst forth: "How did Mister Borglum know Massa Lincoln's head was in dat rock?" We certainly wonder

how Beauregard knew these lines of defense lay in these hills.

The earthwork was garrisoned by the Confederates with seven thousand men under General Gardner. In 1863 it was besieged by a Union army of twenty-eight thousand under the command of General Banks. General Sherman, with three officers under him, was assigned the extreme



This hive also occupies a gun platform. The house beyond is just the other side of the rifle pits.

lower end, General Auger the center, and General Weitzel the upper or northwestern end.

The fighting around Port Hudson presents one of the most vivid pictures of the futility of human struggle in any encounter on a battlefield that I have ever heard of.

Ask the average man what the Civil War was for. "To preserve the Union," admirers of Lincoln will say. "To free the slaves," the southern Negro will almost shout. "To protect state rights and private property," the Southerner will reply.

In this grand scheme, the Confederates established the post at Port Hudson at an obscure point in the woods twenty miles from Baton Rouge to hold their grip on the Mississippi River.

The way it turned out is one of the great lessons. In the late spring of 1863 Sherman brought up a large reinforcement of Negro troops and at a given date tried to storm the lower end of the works. In the Government cemetery just back of the old Federal lines there lie nearly four thousand of these troops, over three thousand of them marked "Unknown."

A comment from history states: "Sherman's colored troops led the initial attack and were quickly repulsed with heavy losses." Auger tried the center, with no better success. Weitzel came down a natural bridge which had been made a part of the line of defense. The line of attack can still be traced along this ridge by the dug-open graves where the Federals buried their dead and later loving hands came to remove them to more hallowed soil.

These open graves marked the advance up to the very gun mouth, but in all this struggle of over two months between twenty-eight thousand troops on one side and seven thousand defenders on the other not an attacker ever crossed that line alive.

A note from history states that when the post was surrendered, on July 9, only three thousand of the Confederates were effective, and only nine thousand of the Federal, such havoc had death and disease wrought on both sides. Food was scarce; it had been an extra dry summer and water was only available from the river. The stench of the decaying bodies between the lines was terrific.

As one climbs over these works, through the vines and undergrowth, with a good lunch under his belt, a jug of ice water under his arm, and wipes the sweat, he is unable to draw a comparison.

After all this struggle to control the river, the Confederates gave up this post without another shot when Vicksburg fell. It was surrendered without a breach and with the river still under control.

As if in irony, the river has moved over nearly three miles from the battlefield, disgusted at human futility. The state of Louisiana has never marked a single grave where her heroes so desperately defended her soil at this point. The heavy woods are full of bee trees and honey plants climb along the lonely and solitary works. One is never away from the hum of bees in the blossoms. Could these dead heroes suddenly awake, they would probably think the bullets were still humming overhead.

But time and nature are great healers. After all this struggle among nearly forty thousand armed men, in a day's tramp one is indeed lucky to find so much as a bullet or a shell fragment to remind him of it; only the ever-silent, looming works.

Also one has to search diligently among musty old books to find meager details of this terrific struggle and the awful suffering, all tersely worded in a few brief lines.

There are the more vivid three thousand little white marble markers with only a number on each, and a few words of explanation on the bronze plate at the gate stating that thousands are "unknown." It seems to me a pity that every beekeeper cannot stroll over this battlefield to absorb the lessons from these silent works, then contemplate the beehives so peacefully sitting on the very gun mouth, their occupants rhythmically winging in and out, heavily laden with the sweets of Nature, obtained from flowers growing in profusion on the very soil enriched by Union and Confederate blood.

The Wild Bees of Australia

Mr. Tarlton Rayment, an old acquaintance of ours and one of the most scientific beekeepers of Australia, is writing articles in the "Australasian Beekeeper" on the wild bees of Australia. We read in his opening article:

Today, October 25, is one such as the gods love. The blue overhead, the soft balmy breeze from the water, and the intoxicating odour of the narrow-leaved Ti-tree and the white masses of Wedding Bush. The air has reached saturation point. What an immensity of bloom. What millions of insects. Nay, hundreds of millions. The air is thick with humming beetles—large greenish-yellow ones with many puncture-like black spots, but most of all, small females, of, say, half an inch in length, of metallic peacock-blue, mating with males showing a little bronze amongst the brilliant azure. The pairs are so numerous that the Ti-tree looks like canes encrusted with opals of dazzling brightness. Flies of all shapes and colours are present in millions. What an amazing array! Never have I seen such a marriage market.

You, reader, will conclude that in such surroundings I must have found bees in confounding profusion. You will be utterly wrong, for the land is almost destitute of them. Days of searching reveal a rare "striped bee" harvesting yellow pollen from the white "Wedding Bush," and a few "Jet-Bees" gathering orange pollen from the scattering Capeweed, for that plant is present only in the places enriched with the droppings of some straying horse. Once I found

a Red-bee on the silky, narrow-leaf Ti-tree, but she was like a stranger in a strange land.

I had been familiar with the country for several years, and as the above record received no additions, I began to neglect it as a field for observation. As I have pointed out, there are innumerable species of other insects—especially flies, beetles and moths, but having only a few years on earth, I have had to confine myself to the honey-gatherers. To say the least, I was very disappointed with the whole district. It is like this, one retravels the country until its *fauna* and *flora* seem really familiar objects. Each by-path is memorised; each colony of wild-bees has been plotted in the record of one's survey. Times of plant flowering have all been checked off until a comprehensive account seems possible.

One accumulates a heap of notes and sketches, and actually begins to imagine that one really knows the district "like a book."

What humbugs we are! Why, one cannot know intimately all the residents of a square yard of earth, and here I am suggesting an acquaintance with a whole coast-line. I beg your pardon, for just as my record looked like being a comprehensive one, I was tempted to re-enter the barren

lands of the scrub, and, presto! I am rewarded. True, I covered a few miles of country in my quest.

Tit for Tat?

Clipped from the "Beekeepers' Record" of London, for October, 1929:

"The Scottish Bee-Keeper," July, page 100, says:

"One Scottish firm imported last season twelve thousand (12,000) Californian sections, and sold every one." Some of us have tasted those sections, and their highly spiced flavour and cheapness—1s. 3d., I think—make one doubt the genuineness of their contents. Nevertheless, to many, not connoisseurs of honey flavours, these sections are cultivating a taste which is resulting in a steady demand to the exclusion of the vastly superior home product.

(This is not the only instance where a bee magazine speaks disparagingly of honey from foreign countries. In our own country, beekeepers are apt to praise our honey and condemn that of other lands. Yet there is excellent honey and poor honey in every country.—Editor.)

North Dakota Builds Bee House to Aid in Experimental Work

A finely equipped bee house has recently been completed at the North Dakota Agricultural College. This is to help facilitate experiments in honey production. It is built of wood, frame and siding, measures 16x32 feet, and has a full concrete floor.

In addition to the honey house proper, occupying about three-

fourths of the building, there is the insectary, which will be used to study the life histories of insects. The part used as the insectary is screened to keep the temperature inside about the same as it is outdoors. The apiary of the college is located just east of the bee house.

We hope now to have much to report from North Dakota.



Survey of Bee Inspection in the United States

By Frank E. Todd

IF the beekeepers of the United States were requested to give \$2,500,000 to any cause whatever, from advertising to any lesser purpose, "Impossible" would be the answer, as such a proposition would be met with scowls and ridicule.

Yet the American beekeepers calmly sit by and even equivocate while they contribute no less a sum annually to the support of foulbrood in their apiaries. Some bite the hand that tries to help them with this problem, and many argue that it is impossible to eradicate American foulbrood and to take this burden off the industry, in the face of overwhelming proof to the contrary.

While contributing this vast sum to the continuance of this great burden, we complain that honey prices are so low that our business is barely profitable. Can you imagine the manufacturing industry overlooking a measure that would cut their cost of production, thereby increasing their profits? Are we keeping bees for love, or is it an industry from which we expect profits?

The Foulbrood Situation in the United States

Estimated number of colonies of bees in U. S.	5,000,000
Number of colonies reported inspected in 1928	1,150,000
Number of American foulbrood colonies found in 1928 inspection	63,250
Per cent of American foulbrood in United States	5.5
Estimated number American foulbrood colonies now in United States	275,000

(These figures are compiled from a questionnaire sent to the various state inspectors over the country.)

Cost of Apiary Inspection in the United States

Estimated total taxes paid by beekeepers on colonies of bees	\$250,000.00
Money spent on inspection in 1928	315,385.00
Average cost per colony inspected	.27 1/2
Estimated sum spent by State Governm'ts on apiary inspection during the past ten years	3,000,000.00

These figures demonstrate that our government has not been stingy in its support of the bee inspection work. What has it bought with these millions of dollars? How much protection did it buy? In most cases, very little. Did it buy any permanent relief? No! Then, how long can we expect this to go on, and

what is wrong, anyway? The figures say that the public at large has paid for a good portion of our inspection service. We have advised the public that they need have no concern about American foulbrood honey from a public health standpoint; therefore, the public has donated this sum to us. This situation cannot be expected to be long continued. We should make the most of our "fling" while we have it.

Now, what is wrong with inspection work? To my mind, it is a lack of uniform aim and organization. What are we trying to do and how well are our efforts directed? Our Government, bee magazines, colleges and some of the leading beekeepers have been advocating control measures, while experienced bee inspectors and many beekeepers are unanimous in their opinions that eradication measures are the only ones that bring real relief in apiary inspection work. By "control measures" I mean shaking bees, "boiling up" equipment, solutions, extracting American foulbrood honey and selling it on someone else's market, etc. These measures, thoroughly tried in the hands of beekeepers, have demonstrated themselves to be foulbrood spreaders, and under their use foulbrood has increased and spread to the far corners of our nation. You need no inspection service if control is your aim, since the aim of control is to enable you to take care of yourself.

But how can you pay your millions in tribute to American foulbrood year after year and compete with the sugar and syrup industries that are taking advantage of every chance to cut their cost of production? Competition is stronger today than ever before—with substitutes and whatnot. Are beekeepers going to be left by the wayside? Or will we meet competition by intelligent effort to eliminate the leaks and thus cut our cost of production?

In a few states, the apiary inspection services have adopted as their aim the complete eradication of American foulbrood over given areas. The reports show that this has been accomplished over greater or lesser areas in Arizona, Alabama, Florida, Mississippi, Louisiana, Texas, Ohio, Michigan, Wisconsin, and perhaps others. It is interesting to note that in all of these cases the results have been accomplished by one method only—killing bees and burning diseased colonies on the spot, going over given areas systematically. This is an eradication measure, and the only type of measure that has eradicated American foulbrood or any similar disease from a given area.

Control measures will not accomplish eradication. "Eradicate" is to destroy complete—exterminate. "Control" is to keep within certain bounds. Beekeepers in areas where American foulbrood has been eradicated report that the extra profits resulting therefrom feel pretty good in their pockets, and they do not regret the sudden relief from this burden which has resulted from burning their diseased colonies along with those of their neighbors.

An inspection service can only be justified when eradication is the aim, because its cost is on the public at large, and they cannot be expected to foot the bill with no end in view. And the most discouraging feature of the situation, as it is now, is that an area in which American foulbrood has been eradicated is guaranteed no protection from American foulbrood honey and reinfection. We have advocated through our various educational agencies, "Try to keep foulbrood honey off your local market," which in practice means to ship it to some other beekeeper's market. The time to get foulbrood honey is before it is produced, by eradicating diseased colonies. A concerted campaign could soon put foulbrood where it is no longer a menace, as has been demonstrated in such states as Texas, Florida, and parts of Michigan.

The Government of the people is spending almost enough money today to buy eradication, but we are failing to reach that goal because we are not using eradication methods. Those who desire to use them find themselves up against the problem of overcoming propaganda of agencies not experienced with apiary inspection, and, therefore, failing to see the practical angle of the problem.

However, if the Government, colleges, bee magazines, leading beekeepers and inspection officials cannot unite upon a definite policy of disease eradication, and stick to it, those states which do eradicate American foulbrood will be forced to protect themselves with such trade embargoes as honey certification. The idea is abhorrent, but our own refusal or inability to cooperate will force the issue, as it is forcing the issue in my own state today.

Summing up the situation, we find that American foulbrood is a real factor in the cost of production of honey in the United States, but that it can be eliminated if proper methods are applied. Our present apicultural inspection service is failing to give us the results we are paying for, due to lack of a definite and unified aim, lack of cooperation, and disorganization. It has been demonstrated that American foulbrood can

be eradicated from a given area, and what can be done on a given small area can just as well be done on a larger one. The inevitable result of our present shortcomings will be trade embargoes, such as honey certification and the resulting inhibition of the industry.

It is due time for all influential persons in the industry to unite and work out cooperative plans for American foulbrood eradication which will not only avert the present tendency toward honey certification, but place beekeeping on a more profitable plane, thus enabling it better to meet the keen competition of modern business.

How Are the Bees?

By Josephine Morse

I am a woman and have been a beekeeper and honey producer for fifteen years. During that time I have had many opportunities to observe, not only the bees themselves and their reactions to their keeper, but also the reactions of human beings of both sexes to beekeeping and beekeepers.

Unquestionably the bees show far more variety in their response. It is an axiom among beekeepers that bees do nothing invariably—and initiates of the craft know how true this is! Though we may predict in a general way what will follow certain of our manipulations, we can never be sure.

The big, hustling colony whose queen lays eggs so industriously that the proud beekeeper can gloat over solid sheets of capped brood in his combs will not always produce the anticipated surplus honey. So the lesson is learned that great numbers of busy bees do not **necessarily** mean a heavy honey crop.

They vary. Each colony is a unit, varying in temper, appearance, health and industry as do human individuals, and they often need expert diagnosis.

Of course the variability of human beings is incontestable, but the questions and comments of those who are ignorant or only half-informed on the subject of bees are as if all cast in the same mould—as regular and uniform as factory-made parts of the ubiquitous Ford automobile.

I do not refer to my closest friends (who know better now!), but to friends seldom seen, and to casual acquaintances.

The first greeting is usually—with a smirk:

"How are the **bees**?"

A deadly question, for how, when there are from thirty to sixty thousand bees in a colony and each colony has its own strong individuality and difference in condition—how can I

answer except in a general way, with a false show of enthusiasm:

"Fine—making lots of honey!"

Usually flat silence follows. Both are grateful when a new topic is begun.

Sometimes this form of questioning, "How are the bees?" is merely a greeting with no attention paid to the answer and no wish for further information—a sort of identification of me with my bees. Or it may be just a polite acknowledgment of interest in my rather peculiar occupation. Occasionally it is a pathetic and uninspired attempt to "draw me out"—an attempt doomed to failure. In such a case the next remark is quite likely to be:

"Don't they ever sting you?"

This question is put to me literally thousands of times, as often from men or women of real intellect as from the unthinking. I suppose it is what people generally associate with a bee—a sting. And I feel sure it is always asked with a hope that the answer may be, "Never!" thus stamping me as something unusual, with some strange charm, where bees are concerned.

If I answer honestly, "Oh, yes, I get stung sometimes, but it doesn't amount to anything," they snort half incredulously.

Then, "What do you do for the stings?"

Patiently, "Oh, nothing. There isn't anything that really does much good."

This is the real way most real beekeepers feel, but I strongly suspect it is not quite satisfactory to the layman.

And often he seems to forget the answers from one meeting to the next.

Perhaps he hopes to hear something different! Perhaps—that would be strange—he hopes **my answers** will vary! And perhaps after all it is I who lack variety and originality, illustrating the precept of modern psychology that the qualities we dislike in others are those which we possess in some form ourselves.

Perhaps I should think up some bright original remarks and incidents with which to parry these monotonous, time-worn queries.

Who knows but a sparkling conversation might ensue, and who knows how incalculably thereby I might boost my business and the honey industry!

For Our Spanish Colonies

The magazine "La Hacienda" (The Farm), published in Spanish, in New York, is a very fine monthly magazine. In its October number it published an article on "The Use of Honey in Diet," by Dr. Carton, a

well known French writer. It shows the value of honey as a food and also mentions its use in antiquity, when sugar was not known. Some very fine engravings accompany the article.

American Diet a Factor in Disease

Because the average American diet is deficient in certain foods, it actually is a factor in the development of degenerative diseases. Dr. Lovell Langstroth, of San Francisco, is authority for this statement, given before the American Medical Association meeting at Portland, Oregon.

Dr. Langstroth made a study of the diet of 501 persons suffering from high blood pressure, hardening of the arteries, rheumatism, diabetes, heart disease and occasional unexplained headaches, and found that bread, meat, potato, all forms of sweet dessert and accessory foods like butter, cream, sugar, and mayonnaise, make up 88 per cent of the diet of these patients. A remarkable improvement took place when they were fed on vitamin-rich foods, such as eggs, milk, fruit, and vegetables.

Dr. Ferdinand Sauerbruch, chief of the surgical service of the Berlin University clinic, has devised a diet superior to any other in the treatment of tuberculosis. He reports that he has completely cured a number of cases of tuberculosis of lungs and bones and tuberculosis of the skin by means of diet. This particular diet was developed by Dr. Gerson, of Bielefeld, and is low in proteins and carbohydrates, but high in fat, vitamins, and mineral salts, chiefly potassium and calcium. The food is largely eaten raw and is prepared in a special kitchen. The hospital cost of it is 70 per cent higher than that for the usual food.

All of this emphasizes the need for a complete revision of our ordinary diet. In this picture surely honey should take an important place. It is strongly suspected, from the results which physicians have so far obtained with honey as an adult food and as an infant food, that it contains dietetic substances which set it apart from other sugars. That it is a natural sugar strongly evidences the same possibility. The efforts of our investigators should soon be turned to the discovery of such contents, so that honey may be linked up to the diet modification now rapidly becoming popularized.

The robust health of most of the farmer folks of Europe, who eat only coarse foods, with very little beef, sugar, butter, or sweet foods of any kind, except the honey their bees produce, goes far to support, in a practical manner, the scientific suggestions of the physicians.



The Educational Exhibit

Minnesota Believes in Good Honey Exhibits

By David I. Day

THE effectiveness of honey exhibits at state and county fairs is more generally recognized by honey producers every year. The beekeepers' display is a good way to stress the importance of honey in the human diet. As a result of a more general appreciation of the fair as an instrument of popular education, we see new and varied movements in many states each summer, all calculated to develop a more widespread honey-eating habit among the people of the United States.

Minnesota is one of the states believing firmly in the fairs as a means of developing a sentiment for honey. For many years the honey displays at the Minnesota State Fair have been models of excellence and have represented time and money, thought and energy on the part of the Division of Bee Culture, University of Minnesota, and interested individuals and agencies. Interest-compelling exhibits in former years were largely inspired by Professor Francis Jager. His spirit in this respect still hovers over the University. Last summer a fine exhibit was shown at the state fair, and an even finer one is being planned for the 1929 state fair.

The university booth in charge of J. W. Thompson, instructor in bee culture at the state university, and others will be visited again by thousands of fair visitors from Minnesota and adjoining states. A new idea of the beekeeping industry will be carried away by them, a new appreciation of the proven health value of honey.

In connection with the work of the Division of Bee Culture at the state university, it is worth while to digress sufficiently to say that many boys' and girls' honey clubs have been formed over the state and are being pushed strongly by the extension beekeepers at the university. This is something which a great many other colleges of agriculture can emphasize more with a greater usefulness to the state. Minnesota has a number of natural advantages as a beekeeping state. In a recent drive the length of this state from St. Paul to International Falls, the fact was everywhere evident that the honey-

producing resources of that big land of lakes have hardly been scratched. All the way from Bemidji to International Falls on the Canadian line thousands of acres of cut-over country lie almost uninhabited, but in the summer time the whole region is a riot of honey-producing flowers. We feel that the University of Minnesota's influence can be made felt in the years to come when the boys and girls of the honey clubs of today help to harvest the wasted nectar of the north woods.

But, let us hark back to the state and county fair displays of the past and future.

When you visit the Minnesota State Fair at Hamline you will find the state bee inspector in a small booth. The bee and honey department is housed in a permanent wing of the Agricultural Building. The department, the state university and the state fair association work in harmony to spread information over the state during the annual meeting of the state fair. Not only is the general public impressed by the value of honey and the importance of the industry, but the beekeepers in attendance are reached in various ways to encourage production, better apiculture management, a more general spirit of cooperation and organization by which conditions may be improved in many ways.

The last state fair in Minnesota had cash to the amount of \$760, and the bee and honey exhibit was one of the largest and best in the country. John A. Stoneburg, of Cambridge, was the supervisor and Joseph R. Finstad, of St. Paul, was the superintendent. No stone was left unturned to induce the practical beekeepers of Minnesota to bring to the state fair their choicest products. The result was not only the adver-



Boys and Girls Honey Club Exhibit

tisement of the individual beekeeper, but the fair crowds were given a fine impression of the uniformly high quality of the honey produced in the state.

Every effort was put forth to make the boys' and girls' honey clubs exhibit measure up to the high standard set throughout the bee and honey displays. The result was gratifying to the fair management and to all interested in the future development of the honey production of the state.

Among the classes attracting major attention were (1) section honey, (2) extracted honey, (3) exhibit of queen and bees.

The section honey had prizes of \$45. It was required that each exhibitor show one glass-front shipping case of twenty-four sections. The honey was judged according to a show card giving flavor a value of 30 points; color, 30 points; capping and finishing, 30 points, and section, 10 points. A fine lot of light, evenly capped comb honey was displayed, very uniform in appearance and free from propolis. It showed beekeeping ability of a high order, and, as usual, made the deepest impression on the crowds. Nothing suits the eye of the fair crowds quite like a big, uniform display of comb honey.

Each exhibitor of extracted honey showed one case of twenty-four one-pound bottles of honey. The score card for judging gave flavor 30 points; color, 30 points; body, 20 points; container, 10 points, and clarity, 10 points.

Beekeepers planning fair displays can count always upon a queen and bees display attracting the crowds.

At the Minnesota State fair it was required that a queen and her own bees be shown in a glass observation hive on one good frame of brood. All or virtually all were leather-colored, three-banded Italians, the popular breed in Minnesota. The amount of \$62 was offered in eight prizes. Even old beekeepers were astonished at the way the crowds were pleased to see the bees "in action."

The queen and bees score card gives uniformity and markings a score of 30 points; color, 30 points; case, 10 points; the appearance of brood and comb, 10 points, and the appearance of queen, 10 points.

Other exhibits included extracting frames, a fine display of beeswax, honey vinegar, honey cake, honey candy. A grand display of honey without limitation save that a 5x8 floor space was considered as a unit of space. The lion's share of the money went to these big displays—\$475 in eight prizes, ranging from \$85 to \$40.

A feature of Minnesota's bee and honey display work which is mostly in the future is the state fair exhibitions of bees and honey put on by

county organizations. A number of beekeepers' organizations have been formed. One of them had space and put on a most creditable display at the state fair. It was undoubtedly a good thing from the standpoint of assisting in the education of the public. It was surely good advertising for the county making the display. More of these county organizations are seriously considering a state fair exhibition, and a development of this work will likely be made in the near future.

In addition to the state fair group, the county fairs of Minnesota offer the beekeepers of various counties a chance to put a good foot forward in the interest of a more widespread consumption of honey. One of the best examples of county fair exhibits in that state is the Hennepin County Fair at Minneapolis. Small cash prizes were offered in the following classes: Section comb honey, extracted honey, granulated honey, honey in extracting frames, displays of comb and extracted, display of beeswax, honey products, live queens and bees. In a broad way it may be said that the same classes prevail in the county fairs as in the state fair. Smaller prizes, fewer competitors, but in some county fairs are to be seen exhibits of state fair quality, and the county fairs contribute their share toward creating a better demand for honey and honey products.

It is essential to understand that wherever fair exhibits are to contribute much to the beekeeping industry, these exhibits must be carefully planned. A lot of earnest work and thought is the price to pay for success in any enterprise of this kind. Merely stacking a certain amount of honey on shelves will not increase the prestige of beekeeping in any state or county.

A unique and clever idea should always be capitalized. Why not have a little extracting plant actually at work before the crowds at the state fair? Why not have a skilful beekeeper take the honey from a hive before the eyes of the people—show them how the smoker, the bee escape, the queen excluder and many other articles are used in the daily life of the practical beekeeper? Why not have an exhibition of various kinds of bees—three-banded Italian, golden, Carniolans, Caucasians and others, with the theme of "bees from all lands"? In short, any idea is good which will cause the fair crowds to stop. Once stopped, they can be taught something about honey, literature can be distributed and questions answered.

The haphazard honey and bee exhibit is worth nothing, but when even a few interested, industrious persons will get busy they can make a real showing in a county fair, one reflect-

ing credit upon themselves and the beekeepers of their community.

(Mr. Day strikes an important point when he suggests extracting honey before the public. We know that very few people realize the value and quality of extracted honey. We have even heard a lady call it "extract of honey." If more people knew positively that extracted honey is pure honey thrown from the comb by centrifugal force, there would be ten times as much extracted honey sold as there is now.—Editor.)

American Lilies Good Addition to Any Garden

There are a number of fine lily species in America, at least two of which are so widespread as to be found practically everywhere east of the Great Plains region. They are



both of the tiger-lily type, having bright orange-red flowers with darker markings.

Perhaps the commoner of the two is the Canada lily. No that it occurs especially abundantly in the Dominion, however. Its name is simply a survival of the historic past when France held all the land between the Alleghenies and the Rockies, and called it all Canada. So it comes that many plants that are not found at all in what is now Canada bear the name "canadensis." The Canada lily is distinguished by the nodding position of its rather straight-sided, trumpet-shaped flowers with their petal-tips flared and curled back.

The second of our commoner wild lilies is the Philadelphia lily. Here again the geographical title is somewhat incidental, for the range of the flower is much wider than the name would indicate. But in the early days Philadelphia, as the largest city in the Colonies and the home of the quiet and scholarly Society of Friends, became the center of early botanical learning, and many of our common plant species were first studied in the surrounding fields and woods. The Philadelphia lily bears its head proudly erect, with its round-sided chalice frankly open to the sun.



Suitable equipment for making honey candies

Honey Candies

"**A**RE you still making honey candies?" We can certainly answer "Yes" to that question, with sales continually on the increase. It is a branch of the honey business I would like to see more beekeepers interested in, and especially the beekeeper who has trouble to dispose of his crop. Business conditions in this section have not been good for several years on account of the coal mines working less than half time. These conditions cut down the sale of honey, as the miners seem to be the heaviest consumers of honey in this section.

Honey candies again moved considerable of the honey and helped out trying circumstances. As a beekeeper, I try and get as much honey in the candies as possible. Too many honey candies on the market, I am afraid, contain too small a percentage of honey to be rightly called a honey candy. I am not in a position to analyze these candies and thus determine the actual quantity of honey in the same. My bars run from 20 to 40 per cent in weight with honey, according to the different kind. My assorted chocolates with pure honey centers as the sweetening product run from 25 to 75 per cent in weight, according to the fruit or nuts mixed with same or just a pure fruit flavor added.

I know of one firm making honey candy and I doubt if their finished product contains 1 per cent of honey, and still they call it honey candy. The pure food law requires so much butter fat in cocoa before the manufacturer can label it "Breakfast Cocoa." Butter must come up to certain requirements, and many other food products that you know of. It should be the same with honey candies.

I am confident there are candies on the market today sold as honey

candies that do not contain any honey at all. Several months ago I decided to work on two new pieces of candy for our package of assorted chocolates. We wrote to a reputable firm for prices on their flavoring extracts and told them we were making honey candies. We were new to them, and as they sent us their circular and prices, they also sent us a two-ounce sample bottle of "honey flavor." It smells like "perfume," and still if you make up some candy from sugar or glucose and add this flavor, it tastes like honey candy. If this is not being bought and used, why does this firm make it?

Life is just one battle after the other to be good citizens and pay our obligations to our fellowman. I don't want to try and knock the firms making extracts and flavors out of business, but I do believe there are enough other products to work on instead of imitating "honey." Their own flavors and extracts must be labeled "Artificially Colored," if such is the case. They must be marked "Oil Emulsion," etc., if not "true fruit flavor." I believe it is time for someone to investigate honey candies on the market and where "artificial flavoring" is used to have the wrapper or package thus marked. No doubt these flavors all stand the test as being pure enough for food consumption, but why cheat the beekeeper out of his endeavor to make an honest living and keep from the public the best sweet Nature ever produced? We beekeepers fought the corn syrup bill at Washington, D. C., to protect our interests, and I believe there is another field that needs watching.

Some time ago we saw an advertisement for "honey creams," "honey bon-bons," etc., at \$2.00 per pound. Just a little high in price, we thought, but we wanted to "see and taste."

We received the package; everything looked fine and the candies tasted good as something sweet and flavored, but we could not taste any honey. For the folks here at home, we cannot see how they can make cream candies snow white and out of honey. Cream candies are made by boiling sugar and glucose and then beating either by hand or with a machine. Mr. Beekeeper, you know what happens when you heat honey over 160 degrees. Now, how white would your honey be if you went to 212 degrees and then some more as it continued to boil. I was always told I was born in Pennsylvania, but I believe I came from Missouri. They have to show me.

We know it would be fine if all honey candies contained just honey alone as the sweetening product, as we have endeavored to do with our own goods; still we realize that every little consumption of honey helps our business, and if sugar is necessary in a formula someone has worked out, then go to it and push it, but where 1 per cent or just enough honey in the candy has been used so they can call it honey candy and thus take advantage of the public by advertising on the name "honey," we do not believe is honest and fair.

Our 5-cent bars are gaining popularity. We have a doctor as a good customer who has bees as a sideline to his profession. He has placed our bars in several stores where he disposes of his honey. He has told us it was a pleasure to sell candy where everyone seems to like it.

The health food stores springing up all over the country are great opportunities for the disposal of honey products. They are the best customers, and we believe they will continue to grow in numbers and prosperity.

As business increases, so must any firm. Our small mixer and beater we turned in to the manufacturer and secured a much larger machine that does four times the work in less time. On the picture you can see the 20- and 30-quart bowls and beaters for same. To the left is our stove and copper kettle for cooking our honey caramels. This is the only piece of candy we make for which the honey is boiled. The other candies have the natural honey flavor.

New goods demand new machinery to produce them. We have come to the stage where we must invent and build a machine to make up our bars instead of hand work. We need a greater production. As we proceed we get new ideas; old material must be discarded and something else needed. We hope some day we can show you a picture of the machine we are working on.

Several years ago and for a couple of holiday seasons we sold a beekeeper some honey candies. Now we

see his advertisement for honey nougats, and we hope he makes a success of it. Let some others try their hand and find additional outlet for honey. There are times when the disposal of honey is a big problem. Just last season we were offered a carload of honey, if we could have used it, at our own price and to pay for same as we used it up. We couldn't ask for a better offer, but such conditions on the part of the producer to move his crop should not exist. Let us try and do our bit in moving more honey.

How I Cured American Foulbrood

By J. A. Reed

Believing that too much cannot be said or written about American foulbrood, I will give my experience.

Late in the summer of 1927, I discovered a queenless colony with a lot of sealed dead brood. Being very busy, with little time or thought to give to the bees, I just put them on top of a nearby hive. Later I saw robbing at this doubled-up hive, and on examination, finding them very weak, I closed up the entrance. Being suspicious, I waited for cool weather for an examination and found the dead broodropy when pierced with a toothpick. I was quite sure from what I had read that I had American foulbrood, but to make assurance doubly sure I sent a sample to James I. Hambleton, Government apiarist at Washington, D. C., who told me it was American foulbrood. Of my twelve colonies, nine were diseased in the spring of 1928.

First, I doubled up, making five from the nine. I had some lath, intended for berry trays. My wife had several yards of muslin she bought for ticking to make straw beds for the berry pickers. Out of the lath I made a frame 4x6 feet, 6 feet high. With the muslin I covered the sides of the frame. No top was necessary.

Placing a hive with full sheets of foundation and an empty hive near the diseased colony, I set my tent over all. Raising one end of the tent, I crawled in with brush and smoker. Giving the bees a few puffs of smoke, I set them off the stand and put the hive with frames of foundation in its place. Then I proceeded to remove the frames and shake and brush the bees onto the new frames and place the frames of brood into the empty hive and cover them with a sheet to prevent the bees from settling upon them. When all the combs were freed of bees I carried them, still closely covered with the sheet, and quickly put them on top of another diseased colony. Going to the next, I continued until the nine sets of diseased combs from the nine colonies were in two stacks on two diseased colonies.

The Filling of the Colon in the Winter

A very interesting piece of work by F. A. Tuenin, of the Tula Experiment Station, Russia, was referred to in the American Bee Journal, March issue, 1929, page 128 (the whole was published in the Russian Bee Journal, "Opitnaya Paseka," 1928, N 8-9, page 351), concerning the filling up of the bees' colon during the winter period.



This spring I observed bees that had already emptied themselves, and those that had perished with an over-filled colon. I weighed both and found that the empty bees weighed 95 mgr. and the full ones 175 mgr., a difference of 80 mgr. On the enclosed photo both kinds may be seen and also two queenbees. I give those for the sake of comparison, but I fear that the photo may be a riddle for beginners, for an unemptied bee looks far more like a queenbee than like her working sisters.

A. T. Bogdanoff,
Tyriseva, Finland.

After three weeks I treated the stacks, making two of the most powerful colonies I ever saw.

The lath and the muslin having been used for the purpose for which they were originally intended, I worked them at night, but I would never do so again, for I got the worst stinging of my life. They crawled into my clothing by the hundreds, and, although I stayed with them until finished, I left my clothes on the porch as I entered the house.

I used some of the old, infected hives, supers, bottoms and covers, but burned them brown before using them. The hives I stacked up and dropped a big handful of straw into them and set the straw on fire. When the inside of the hives were pretty brown I dashed a little water on the fire to put it out. The covers and bottoms I treated by firing a small brush pile and laying them on the fire. I allowed the wax and propolis to get ablaze and then removed them and scraped them good.

I put the old, diseased combs away in a good, tight granary and treated them to carbon disulphide. I haven't decided what I'll do with them. My bees are as clean as can be. I increased the eight to twelve and got six supers of fine honey in a very poor season.

Let me add that the three colonies that didn't have foulbrood were dark, three-band bees, while those that had it were very light yellow, except one black colony.

Missouri.

Honeybees "Capture" a Thomasville Store!

Surely the paragraph published under this title in the October number, page 524, celebrates one of the most expert and at the same time heroic operations recently chronicled in apicultural history.

"It happened that Mr. Thomas was well acquainted with bees."

This being fortunately the case, with a calm and quiet courage beyond all praise he loaded his squirt-guns instead of inverting a bucket in a corner of the store. Using Jones's Killemoff, as supplied by all druggists at 50 cents a quart can, gun 25 cents extra, he stood there alone, driving down the plunger with steady, un hurried strokes, and soon had every last misguided homesucker lying flat on its back.

A similar fate awaits every known variety of hexapod that comes within range of this marvelous preparation. Yes, sir, for swarm control apply to Charles R. Thomas, who is well acquainted with bees and keeps on hand a large supply of the right stuff.

It so happens also that Charles R. Thomas is the name of the fastest sprinter I have known. He is now a substantial parson, but he used to be in the under-ten-seconds class. I can just see him streaking down the street from that store. But this C. R. T. didn't; he stayed right there, relying on his own courage and Jones's Killemoff. He was powerfully acquainted with bees.

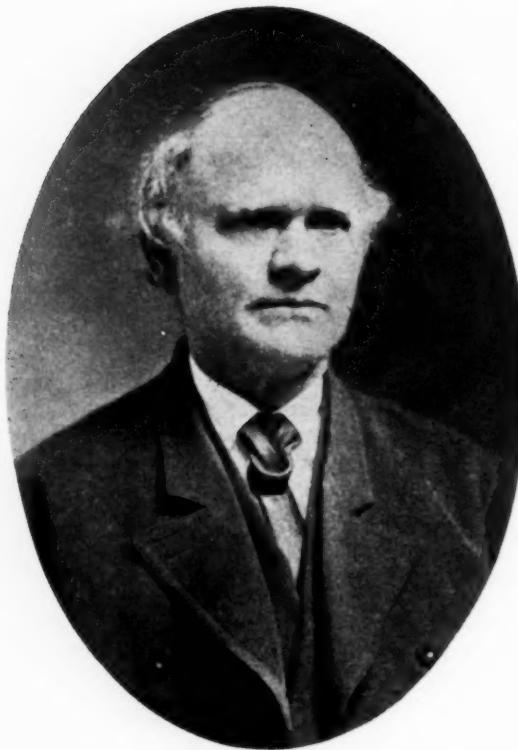
John Protheroe,
Rustburg, Va.

More Education, Less Fire

If the same amount of effort now spent on burning bees were applied to curing, saving, and sympathetically helping beekeepers, there would be many more pleased and encouraged bee men. On looking over a yard of fifty colonies, if ten or twelve were found diseased and the inspector would say, "See here, they are all twelve good, strong colonies with full supers of bees worth \$50; I can either burn all of them or cure them and charge you \$50," would not the beekeeper often say, "I'll pay you and do my best to follow up your cure by melting every comb in the yard?"

If the inspectors came as sympathetic teachers instead of policemen with clubs, it would be to the credit of the profession. I can't help thinking that burning is inexcusable.

R. F. Whiteside.



Adam Grimm in 1874 at the age of fifty

YOUNG Adam Grimm had inveigled his father into a promise: He would help Adam carry a colony of bees from a neighboring village home to Wunsiedel.

The colony was housed in a straw hive, which the two slung to a long pole; the father hoisted the front end of the pole upon his shoulder, while Adam supported the rear end. But the hive was much heavier than the elder Grimm had expected, and it became a sore burden before they had traversed the several miles to Wunsiedel. Caustic remarks escaped him. These multiplied at last into a steady stream of German grumbling.

The boy at the rear was having no easy time, for the pole dug into his shoulder and the weight taxed his youthful muscles. But he gritted his teeth and grasped the pole the tighter, managing in spite of his discomfiture to take a Puckish delight in his father's growing provocation.

Miles of grumbling, miles of gritting teeth and holding on. At last they reached their garden gate. The father let down his end of the pole to open the gate, and jarred loose the cover from the hive entrance. The bees, sizzling with vexation, tumbled out of the hole. One attached herself to Father Grimm, who bolted for the house and closed the door on

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Lives of Famous Beekeepers

By Kent L. Pellett



his assailants, not, however, until he had received several more stings.

With expedition, Adam relieved himself of the other end of the pole and found cover in a different direction.

Years later he told the story to his children. What did his father say when Adam went into the house? they wanted to know. "Oh," replied Adam, with a smile on his round, serious German face, "I kept out until he had time to cool off; and when I went in he looked at me for a few moments. Then all he said was, 'Nie wieder' (never again)."

Adam Grimm, son of Johann Grimm, farmer, was an ambitious



Homestead of Adam Grimm in 1869, showing the first apiary in which he introduced Italian queens upon his return from Italy. Then he had about 200 colonies. In 1876, just before his death, he had 1500 colonies.

young clerk in a law office in Wunsiedel, Bavaria. He kept a few colonies of bees for his amusement, and spent hours on Sunday with them. He was a hard worker and stubbornly persistent. His prospects were good.

But revolutions have a way of putting twists in men's paths. And the revolution of 1848 made American beekeepers of at least two Europeans. Charles Dadant left the wreckage of his mercantile business in France to operate a brush farm in Illinois; and Adam Grimm, the young Bavarian law clerk, disgruntled at the failure of the revolution in Germany, decided to turn his back on festering old Europe, took the money he had saved from nine years of work, and sailed for America.

On shipboard he became acquainted with a girl, Anna Thoma, from the village of Grafenreuth, neighboring to Wunsiedel. They had known each other slightly while at home. Anna, also, intended to make her home in the new world. The two found a mutual sympathy in the great unknown that faced them. Upon landing in New York they were married, and set out together for the woods of Wisconsin. It was early spring.

Adam's money bought twenty acres of timberland. He and Anna worked together that first summer to clear a few acres and make a planting of maize and vegetables. In late summer basswood blossoms were heavy with nectar and covered with black bees. Adam caught a few colonies of bees in the woods and started an apiary.

Each year following he cleared more land and increased the number of his colonies. He set out several acres of nursery and orchard. But the work of making a farm in the woods was an arduous one for the young law clerk, and he fell ill with fever and ague. Then other and more severe sickness kept him in bed for weeks at a time. And some years there were crop failures, the old story of the difficulties of the pioneer.

But Adam was not discouraged. He had honey when he had little else, and it saved his family from hunger in many scant years. He kept forging ahead. This trait of stubborn persistence he had carried with him since his boyhood. His school chums had had a common saying among them that, "It is a good thing that Adam never decides to run his head through a stone wall, else we would have a funeral on our hands."

In 1864 he had sixty colonies of bees, housed, as he said, "in tall hives and low ones; in wide ones and narrow ones; in wooden hives and straw hives. . . ." That last year of the Civil War honey sold for high prices. Adam Grimm did that year two things that were to alter his bee-

keeping and his fortunes. He began to use Langstroth hives, and he introduced Italian queens into his apiary.

The hives and the new bees succeeded with Adam, and from that time on he found a smoother road to prosperity. Ten years later he cleared ten thousand dollars in one season from bee and honey sales. With that money he became one of the founders and the cashier of the Farmers and Merchants' Bank of Jefferson, Wisconsin. Other farmers now saw possibilities in honey production. Jefferson was becoming a beekeeping center.

Managing fourteen hundred colonies in seven or eight apiaries over a territory of nine miles, and traveling from apiary to apiary in his wagon, Adam spent much time hauling his bees about the first seasons. Later he built cellars near each apiary, so that the bees need not be moved. In season Adam always might be seen in one of his various apiaries, a medium-sized, square-built figure, in his bee veil that looked like a Dutch nightcap.

Through correspondence with the Baron of Berlepsch of Germany, Adam decided to import some Italian bees. In 1867 he gathered enough funds to make a trip to Italy, but the one hundred queens he carried home with him all died on shipboard. Three years later he was able to make another trip to Italy, and take sixty-nine queens alive to New York City. It was the largest importation yet made into the United States. He sold some queens to New York beekeepers, but reserved forty of them for his own apiary.

Adam bred Italian queens and bees for sale; and he encountered the same disillusionments as many another early day queen breeder. Customers had visions of bees of brilliant gold, and when the Italians shipped them lacked this color they became suspicious and disgruntled. He was pestered with continual complaints, and declared after a year of it that he never would raise another queen for sale.

Adam wrote numerous articles for the American Bee Journal, articles relating in a concise manner his bee-keeping experiences. And he had not entirely forgotten his law experience. He gave legal counsel to a large circle of his friends. And his son, George, was preparing for a law career, to follow the path Adam had lost.

Through his apiary and his few acres of orchard and nursery, Adam had found prosperity there in the Wisconsin woods. He was one of the outstanding beekeepers of the country. Now that he could, his wife admonished him to rest more. Adam, however, had followed a rapid pace too long to know how to rest. But the long, heavy years of work had

taken toll of his body. He died in 1876, at the early age of fifty-two.

Adam Grimm's success cannot be attributed to unusual honey crops or extensive breeding operations. He tells of his honey yields: "I experienced what I considered extra good honey seasons, and also others so poor that my stocks had on an average not more than five pounds of honey the first of November. And I must say I never obtained so large an amount of surplus honey from one or from many hives as I notice reported in the Journal by some beekeepers . . . With the exception of about a dozen cases, I obtained no greater yield of surplus honey than twenty-five pounds from any single hive, or an average of about fifteen pounds from the whole number . . ."

James Heddon later tried to diagnose Adam Grimm's method of reaping a substantial livelihood from his bees while others, including himself, found keen the struggle for subsistence. "Adam Grimm lived and labored in the right time," said Heddon. "He had 'war prices' for his honey. He had lots of bees when these prices began. . . . Through good luck or good management, he wintered his bees when ours died, and sold to us for twelve to fifteen dollars per colony. When we must have yellow bees, again he came to the rescue at five to eight dollars each. Adam Grimm was a strict economist; in other words, a smart financier."

Adam Grimm lived at the right time, said Mr. Heddon. So did hundreds of other beekeepers live then, and but few of them reaped notable rewards. Always it is the right time for somebody.

Neglect Is Only Excuse for Burning

On page 491 is an article by George W. Moore in which he takes a shot at Mr. Gray and Mr. Smith. It seems that Mr. Moore has had over twenty years' experience with bees and five years' experience as inspector. I wonder if he has practiced burning during all this time as a commercial beekeeper? If he has, I can understand why he succeeded in taking a position as a bee inspector.

I have also kept bees for twenty years, but I have not been burning. Instead, I have used the formalin treatment and I am still producing my three carloads of honey every year.

There is only one occasion to burn a man's bees. That is when he refuses or neglects to take care of them himself within a reasonable length of time. Then I say, "Clean him up."

C. V. Woolsey, Wyoming.

Big Families Good Prospects: How to Attract Them

By Frank V. Faulhaber

PARTICULARLY the beekeeper who in the past has been disappointed with marketing results, and who is desirous of creating favorable interest, would do well with his honey were he to run a prize contest. The contest should not be of the ordinary kind, and should be intended to draw people from different sections. The ultimate object would be to accumulate a valuable list of likely customers, who at the same time would prove large buyers.

What better class to interest than large families? The enterprising honey producer might offer suitable prizes for the photos showing the biggest families. There should be no restrictions, no purchase necessary. The farsighted beekeeper might so extend the contest that it would invite photos from different communities. Obviously, if such a contest reaches distant prospects, the beekeeper's product being given a trial, as by way of samples, his business would receive a satisfactory form of advertising at a very nominal outlay, that in the end would promise great returns; inasmuch as he would be selling honey to people who otherwise likely never would have heard of his product.

Large families represent large consumers. A single prize of a ten-pound pail of honey might be offered to the one who submitted a photo of the largest family; or there might be three graduating prizes. Each entrant might be promised a sample of the beekeeper's product, which alone suggests possibilities.

The stunt should be announced in local newspapers; if the honey producer desires to draw responses from distant towns, papers reaching from might be considered. Customers and friends might be told about such a contest. This would set people talking, and that is just what is wanted. Announcements also could be posted on fences, near much-traveled roadsides, and in different conspicuous places.

The newspaper advertisements need not be larger than of the ordinary column in width, and of from four to eight inches in depth. That amount of space would require but little outlay. Just make known, in a few simple words, the nature of the contest, naming a definite closing date. At the same time, people could be invited to visit the apiaries, displays or any exhibits that may be arranged in connection with the contest. Incoming photographs could be displayed where all could see; people

naturally would come from various points, curiosity whetted, to look over the photos. The beekeeper might put on view only certain photos to keep the people guessing. All this would create valuable publicity. While the contest is under way, special demonstrations might be conducted, to further stimulate interest. Or the beekeeper may want to run the contest with future opportunities in mind, concentrating wholly thereon, and say little or nothing at the time about his product. Either way, the expectations should be gratifying.

Small cards, say three to six inches, might be distributed to contestants, to be filled out properly. Such data might be recorded thereon as the name and address of entrant, number of people in the family, whether using honey now; whether the entrant would like to receive from time to time useable sales literature, such as recipes for the use of honey, information about bees and the product, and the like; also, it might be suggested that names and addresses of friends be jotted down, where it is believed they might be interested.

The entrant cards would constitute good prospect cards. Later each prospect could be solicited in various ways, when it is desired to move honey. Since each contestant represents a certain large family, the outlook should look particularly satisfying.

If so desired, the beekeeper could grant discounts to all senders of photos on purchases of honey. This in turn would again serve to stimulate honey sales. There would be no expense to speak of attached to such a proceeding; subsequently it would all be repaid; large families, once properly educated to the various uses of honey, would become large users of the product and hold it in high commendation.

The beekeeper would do well to enlist the cooperation of local newspapers. While the contest is in progress, pertinent write-ups could be printed, somewhat of an educational character, which would further serve to stir up interest and create a better appreciation of, and greater desire for, honey.

At the termination of the contest, all people could be invited, by newspaper advertisement, and perhaps by general distribution of circulars. On the grounds, demonstration of a special kind might be arranged, and honey in divers attractive forms be

exhibited. Such a course would go far to educate the visitors properly concerning the many possibilities of honey, familiarizing them with its high food value. The conclusion of the contest would call forth a good crowd, and there would be much good-natured comment by the very nature of the stunt, and otherwise result in considerable valuable publicity for the beekeeper.

Nature Rambling

Singing Toads

With the coming of settled warm weather we can expect the nights to become vocal with the long, persistent trilling of singing toads wherever there is a pond or marsh within



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a mile or more. These serenading batrachians, each intent upon winning a mate for himself, will keep up a saengerfest to the most ungodly hour, making sleep impossible, until we wish that we, too, had the power accredited to the old French nobleman who forced his vassals to tramp about the marsh all night to keep the frogs quiet.

The toad, and his almost equally vocal cousin, the frog, would not make much of a noise in the world if it were not for their remarkable power of puffing out the skin beneath their throats—a gift which attracted the notice of naturalist-philosophers at least as early as *Æsop*. But when this sac is distended to its maximum size and tightness it becomes a most efficient sounding-board, multiplying the animal's natural voice many times and giving it a most astonishing broadcasting range.

But for all we may objurgate the toad by night, we should by all means befriend him by day; for, though his voice be not that of a mocking-bird or a brown thrasher, his appetite for insects is even better. And having no wings, he loses no time flitting about in the air, but stays right down on the ground, under the leaves, where his bright little eyes can spy the crawling enemies of our gardens and his lightning tongue can lasso them and drag them down into the redemptionless pit of his gaping jaws.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

CELOTEX FOR WINTERING

1. I have six colonies of bees in ten-frame hives. I should like your suggestion on wintering these bees. I have on hand some pieces of celotex that would make solid sides or a good outer cover for the hives. How would it be to place pieces of this material between the metal cover and inner cover?

2. In these hives, with brood frames about half filled with honey, would you advise placing a super of honey, which I have kept for this purpose for each hive, at this time or when brood raising starts in spring?

3. Is it well to open the hive in the winter to see if bees are short of honey supply or the general condition of the hive?

ILLINOIS.

Answer—1. Your suggestion is all right. Go ahead and do it.

2. I believe your bees have enough honey in the hive body to carry them till spring. At that time you should see what they need and give them the honey which you have saved.

3. It is not advisable to open hives in cold weather. But if you have bright days, when it is warm and they can fly, in January or February, there is no objection to your examining them and supplying their possible wants.

LATE FEEDING

I wrote to you a short time ago in regard to some of my colonies being low in supplies, which to my opinion had enough supplies to run them through the winter when I examined them in the fall, etc. This inquiry you did fully answer.

Now the question comes up to me how to proceed to feed these colonies. We winter our bees outside; my colonies are all in one-story hives. On some of these hives I put double covers with air space between; on some I put on each hive a super filled with leaves, packed tight.

Now how would you advise me to feed these bees this winter? Would it be necessary to take the chaff super off, or could I fix it some way so as to slip a gallon honey can through the leaves? I have wire screening on bottom of super to hold the leaves from coming in touch with frames below.

Will honey or syrup flow freely in the winter by punching holes in covers of honey can? Would screen below interfere? Would there be any danger of syrup flowing so freely as to endanger the bees below?

Heretofore I never disturbed my bees after I had them fixed up for the winter. I suppose to do this work I would have to do it on warm days when they are flying. I have no sealed combs left.

KANSAS.

Answer—Feeding at this time of winter is not very desirable, as it disturbs the bees. I believe that if I had to feed bees out-of-doors, I would give them candy instead of syrup. We make candy by adding water to sugar and boiling slowly until the water is evaporated. Stir constantly so that it will not burn. To know when it is done, dip your finger in cold water and then into the syrup. If what adheres to the finger is brittle to the teeth, it is boiled enough. Pour it into shallow pans, greased a little, and when cold break into pieces of proper size.

Then open your hive and lay this sugar candy right over the combs, so the bees can reach it. This will do for quite a while. It will be better than giving them syrup in cold weather and will avoid chances of robbing. You may feed them syrup when the weather is warmer.

See instructions about feeding in our book, paragraph 610. Of course, you will have to take off the screen so that the bees may get to the feed.

TOP PACKING

1. I have my bees in winter cases; but in putting the leaves around the hives I have not put any moisture-absorbing pack in top of the hives. Is this essential? Can I still do it now? What kind of a day should I use for this?

2. My hives face south. To prevent the sun shining directly into the flight hole, should I put a board in front of the hive?

3. Combs of honey late extracted could not be worked on by bees this fall. Should I let them work on them this spring, or would there be danger of robbing? What would you suggest to do with them?

4. What is the best book on beekeeping, for a man holding about fifteen or twenty swarms?

IOWA.

Answer—1. The absorbents on top of the combs are not absolutely essential, but bees will winter better with them. You can put them on on warm days, or if it does not disturb the bees, you may put them on at any time, taking care to jar them as little as possible.

2. It is not necessary to put a board in front of the hive to keep the sun from shining in. If there is a warm day occasionally, it will not hurt anything to have the bees take a flight.

3. Late extracted combs may be given to the bees in spring after they have begun to breed and are taking daily flights. To avoid robbing, do not give them many at a time, and give them in the evening after the flight has ceased for the day.

4. It is hardly fair to ask a writer of books what is the best book, as he wouldn't be human if he did not think his own book was the best. I am enclosing a list of our books on bees.

WINTERING IN CHICKEN COOP

Will you please advise me as to how one would winter sixty-five colonies of bees in a brick chicken coop 10x10? Also at what temperature should the room be kept to winter them successfully? It is always below 40 degrees.

IOWA.

Answer—The proper temperature to winter bees so that they will be quiet and will not fret and not consume too much food is about 42 to 48 degrees. A room that stands at 40 would be too cool, but of course the warmth of the bees would raise the temperature. The question would be whether the warm days would not bring it up too high, so that the bees would become restless.

If you can keep that room at say 45 degrees, it would probably do well. We have always succeeded with a cellar at about that degree. Of course the colonies must be in the dark. We much prefer a cellar to a room above ground, because it is so much easier to maintain the temperature at the proper point.

STRONG HONEY FOR WINTER STORES

I have on hand a case of strong honey. Is there any way that I can feed it to some new colonies that do not have enough for winter? If there is any use to which I can put this honey, I will appreciate your suggestion and instruction.

ILLINOIS.

Answer—It is a little bit late in the season to feed honey to bees for winter, unless you put the hive in the cellar. Of course, if you must feed, better late than never.

Strong honey has two faults: It is likely to attract robbers, by its strong odor, when it is fed during warm days. Then it is less suitable for winter feed than light honey or sugar syrup. It would be all right for spring. Feed it in cans placed in the upper story, bottom side up, with very small holes in the lid. The bees will suck it out. Do not give too much to one colony at a time, and place it right over the cluster.

CELLAR CONDITIONS

I have had my bees in the cellar from the tenth of November, and they (one hive) are buzzing a little all the time. I have a little screen box over the opening, and this contains about a half cupful of dead bees. Is this unusual? The temperature of cellar has been between 40 and 50° F. A neighbor told me that the hive that buzzes a little is uneasy and that they will be dead by spring. What do you think?

MINNESOTA.

Answer—If your bees were contented with the conditions, there should be but a very faint hum, barely perceptible.

They are probably either too warm or too cool, as there is quite a difference between 40 and 50 degrees. But it is between those two points that the quiet conditions are to be found.

Try to make the temperature a little warmer, then a little colder, and keep them at the degree that will give them the most quiet.

Do not disturb them when they are quiet. Do not keep them in daylight. Have them in the dark. Leave the entrance open. When bees are wintering properly, there are none wanting to fly, except towards the end of the season, and then it is best to let those go that are uncomfortable.

INSPECTION BEFORE PURCHASE

I have been interested in bees for some time and have an opportunity now to buy seventy stands from a neighbor who, because of failing health and age, has been forced to give up the business. These bees are not all in standard hives, but all hives have removable frames. I have never seen any bees with foulbrood, so I wonder if it would not be a good thing to have the state inspector examine them before I take them, as I would not want to start with a lot of disease. My neighbor had the inspector here last spring. He said there were two hives that showed symptoms of some European foulbrood, but these two hives seem quite strong now and made a surplus of honey this summer. If you think they should be inspected, would you please send me the name and address of the inspector for this district?

I now have fifteen stands of bees of my own. Do you think I bought these bees reasonable at \$3.50 per stand with one super on each hive?

ILLINOIS.

Answer—It does not seem likely that you have disease in your apiary. But it is better to make sure. Write to A. L. Kildow, Putnam, Illinois, who is the State Apiarist, and ask him to give you the address of the local inspector, as I do not know it. Tell him I advised you to write him.

If the bees you bought are healthy, you have bought them cheap enough. In any case, it is best for you to have control of them, so as to prevent disease.

SUFFICIENT WINTER STORES

1. This year we bought package bees and filled several empties, also took a lot of big swarms, and all seem to be thrifty and have made a lot of honey. Now, if the hive body is well filled with honey, will that be plenty to winter them, or must we be feeding them along occasionally?

We have several extra deep hive bodies with a standard size on top. They were the last ones to make us any honey in supers, for it took them so long to fill their space, and we would like to reduce them to one-story hives. They would surely have stores enough to run them.

2. We took off some supers and stacked them up for several weeks before extracting. When we extracted we found some moth in several of them. Now what can we fumigate those supers with to kill any that remain, if any do remain?

3. What is the best way of having the honey cleaned out of supers after extracting? If we put them out for all the bees to clean out, they tear up the foundation so badly. Is it safe to keep them until spring with the honey in them?

KANSAS.

Answer—1. If the hive bodies are well filled with honey, the bees have probably enough to winter. If they need additional food for spring breeding, you will easily find it out at the first examination in spring. Bees winter better on one-story than on two.

2. At this date there is very little danger of moths, and if you store your supers in a room without fire it will destroy all the moths, eggs and larvae that may be in them. Beemoths cannot stand the cold of winter, and it is only in hives of bees that they can live through.

3. If you did not put the supers back on the hives to have them cleaned, it is rather late to do it, unless you have some warm weather. In that case, putting a super on top of each colony, in the evening, they will have them pretty well cleaned up by morning. But you should not leave them on for cold weather, for they may cluster in them and starve.

If you do not have a textbook on bee-keeping, you had better buy one. I enclose a list.

QUICK GRANULATION

I should like to receive your advice on the following questions: I have some honey in ten-pound pails which, I considered, was not thoroughly ripened on the hive, and at the present time, which is about sixty days since I removed all my honey from the hives, is candying, while other, which was completely capped, is not candying. What is the reason for this condition?

Also, does freezing honey cause it to ferment the coming year?

WISCONSIN.

Answer—We are unable to understand why honey which is less ripe granulates earlier than very ripe honey. But this is the fact nevertheless. It appears that some constituents of the honey separate themselves from the mass and become hard.

Of course, exposure to the air is likely to hurry granulation, and well sealed honey has the least amount of exposure.

I do not believe that freezing causes any fermentation in honey. Heating to a small degree helps evaporation and to a degree prevents granulation. I believe that, if you heat the honey which is granulated to somewhere near 140 degrees, you will do away with granulation or cause it to change from the coarse kind to a smooth condition.

Remember that, for export, granulated honey is more desirable than liquid honey. In some sections of Europe they expect good honey to be granulated in winter. Everybody who is at all acquainted with the nature of honey knows how to reduce it to the liquid state.

PROVIDING UPWARD VENTILATION

1. As it is getting time to fix the bees for winter, will you please tell me how to fix the super—that is, what is best to fill it with for moisture makeup? And the hole in the honey board—do you put screen over that? I have seven swarms and I never kept bees before, although my father did.

but I didn't pay enough attention to remember that part.

2. Another thing: How can I manage these new swarms I have, next year, so they will make honey? My neighbor says the young swarm makes the most honey. I know the old swarms didn't amount to much, and if it is only the first year, one might better take their hives and buy the bees.

MICHIGAN.

Answer—1. To fill the super with absorbents for winter, remove all that may be in it and also remove the honey board entirely. Then put the super back on the hive and fill it with a sack full of either dry leaves, shavings or cork dust. Dry leaves are usually the handiest and they do very well. This absorbs the moisture from the bees and keeps them dry.

2. Don't listen to your neighbor about new swarms. Treat the bees just as you do the other colonies. If they have plenty of food they will make honey next year, and so will the old colonies, if they have queens. That is all you need to worry about. If they rear brood, they have queens and will get along if they have plenty of honey to eat.

We advise you to read some textbook on beekeeping and get posted. We send you a list of them.

RADIATOR SOLUTION

I am a beekeeper and a reader of the Journal, and would like to know just what part of honey and water to use in an auto radiator to keep it from freezing. Would honey that has soured a little do just as well?

INDIANA.

Answer—About half and half of honey and water will make a good anti-freeze solution, provided your radiator joints do not leak, as water and honey leak even more readily than pure water. It would be still better if you added about 10 per cent of alcohol to the solution.

Honey that has soured a little will be all right for this purpose.

Honey Needs Advertising

By Homer B. Turrell

National advertising of honey, it will be conceded, is one of the ends sought to be accomplished by co-operation. A short survey of former associations of beekeepers might lead one to think that they were more or less a failure; but it is necessary to keep in mind the changing purposes of organization. The effort was formerly along educative and social lines with a view to the improvement of appliances and an increase of production. This purpose was so well accomplished that it became necessary to take up the question of distribution, including grading and national advertising. It was hoped to accomplish this through cooperation, so we have the changes in the name and the purpose of the national organization that conform to this end.

It is pleasant to think that the social effort of the bee men, who are a gregarious bunch, still continues in the various meetings throughout the land, and through conversations in the bee journals. While the obstacles to cooperation have not been overcome, that does not mean that the movement has been a failure.

Naturally, the beekeepers would attempt to put their business in line with present production practices as nearly as possible, so we see the methods of mass production used in so far as they are applicable under present conditions—the outapiary, the truck, the strenuous bee master; but the nature of the business does not suit the purposes of mass production to the full extent, so relief from low prices cannot be attained by increased individual production, thus lowering costs.

The relief would have to come from increased demand and better distribution. The law of supply and demand has not been repealed yet, as one enthusiastic supporter of Mr. Bryan said would happen when he became President.

While the beekeepers were busy building up the production end of their business, manufacturers were not idle. History was not repeating itself, but producing something new under the sun besides airplanes and radios; it was putting the world in position to think of consumptionism, if anyone knows what that means. One phase of it seems to mean that we should build up the wage earner's pay until he can buy all the things that would ordinarily be sold as luxuries; another, that if a motor car, typewriter or sewing machine gets out of kelter it should be knocked on the head with a sledge-hammer and a new and better one issued in its place. According to this, if a beekeeper had a barrel of honey that was out of date he ought to throw it into the river and produce a new and better supply. At this rate, how long would it be until industrialism reduced itself to absurdity?

However, this is one of the things the beekeeper is up against. He is in competition not only with all kinds of syrups, sugars, jams and jellies, but with all the goods whatsoever that are manufactured in the world. Does honey need advertising?

Hummingbird Fed Honey from Spoon by Indiana Woman

A tiny hummingbird that was orphaned by one of nature's unchronicled tragedies, daily is being fed honey by Mrs. Sam Schnelle, of this city.

The little feathery midget was on the verge of starvation when found by Mrs. Schnelle. She fed it honey from a spoon and the bird gradually grew stronger.

The hummingbird, now full grown and strong, according to Mrs. Schnelle, darts daily out of a tree and sips honey from a spoon held by Mrs. Schnelle. The hummingbird answers her call at meal time without delay.

J. B. D.

MEETINGS AND EVENTS

Current association meetings and organization notices are published in this department each month. Secretaries and other officers of organizations who wish publicity here should make sure that notices are sent in before the fifteenth of the month preceding publication. Frequently notices are received too late for use and consequently do not appear at all.

February League Meeting Most Important of Winter

The annual meeting of the American Honey Producers' League, which will be held at the Hotel Wisconsin, Milwaukee, Wisconsin, February 4, 5 and 6, promises to be one of the finest conventions which beekeepers have had the privilege of attending in many years. It is to be not merely the annual convention of the only national organization of beekeepers which we have, but a number of related organizations are taking advantage of the reduced railroad rates to hold their meetings at the same time, among them being the American Honey Institute, which meets the day before the convention, and the Apriary Inspectors of America. We would like to invite any other organizations which have anything to do with the honey industry to meet with us.

A splendid program is being arranged, which includes Dr. Barnard, President of the American Honey Institute; Mr. James I. Hambleton, Washington, D. C.; Professor Kelty, of Michigan; Miss Barber, of Battle Creek, Michigan; Mr. Parks, President of the Bee Industries Association of America; Mr. A. W. B. Kjossness, manager of the Mountain States Honey Producers' Association; Miss Malitta D. Fischer, of the American Honey Institute; Professor Wilson and Mr. Marvin, of Wisconsin; Mr. H. A. Mark, of Nebraska. A great many others will be on the program, to be announced later.

We would like to take this opportunity of inviting beekeepers and others interested in the bee and honey industry to send suggestions for the program and for the League to Secretary J. A. Munro, Agricultural College, Fargo, North Dakota. We will be glad to have any suggestions which will help build a better program and which will help make a stronger and more useful organization. Beekeepers of America, this is your organization and your meeting! Let us all help to make it more nearly serve the purposes for which it was organized!

It has been very gratifying to have individual and affiliated memberships coming in from all parts of the country—North, East, South, and West. But we need still more! If every beekeeper in the country could realize not only the help that he would give, but also the vastly greater advantages that he would receive by becoming a member, the American

Honey Producers' League would very quickly be an organization of many thousands, as it should be, and as I believe it will be in the near future.

It is very important that every affiliated society name its official delegate to attend the annual meeting and be prepared to do his part in shaping the policies for the future.

M. C. Tanquary, President.

Illinois State Meeting, Springfield, December 3 and 4

This will be the thirty-ninth annual convention, called to order on Tuesday, December 13, at 10 o'clock in the morning and closing in the afternoon of Wednesday, the fourth. The meeting will be at the St. Nicholas Hotel, as usual. There is a mighty fine list of speakers: J. F. Diemer, queen breeder at Liberty, Missouri; Conrad Kruse, comb honey producer, of Paris, Illinois; L. C. Dadant, Hamilton, Illinois; E. R. Root, Medina, Ohio; a speaker from Mr. Hambleton's office in Washington; Honorable H. W. Smith, Roodhouse, Illinois, and G. H. Cale, Associate Editor of the American Bee Journal.

I haven't a full list of titles at the present time, but it will include producing and marketing of comb honey, bees in relation to fruit growing, a discussion of the wintering problem, and some of the newer phases of the industry, particularly the work of the American Honey Institute and the various marketing agencies that are building up our market.

V. G. Milum, Secretary.

Sixtieth Annual Michigan Winter Meeting

The sixtieth annual winter meeting of the Michigan beekeepers will be held at Grand Rapids, December 4 and 5 at the same time the Michigan Horticultural Society is in session. This will make it possible for fruit growers interested in bees to attend portions of the beekeepers' program, and beekeepers will also profit by securing some of their speakers. Headquarters for the convention will be the Pantilind Hotel.

There will be quite a number of outside speakers. We expect a big crowd and hope that every beekeeper will come who can possibly do so.

Russell Kelty, Secretary.

New York Federation Meeting

The New York Federation of Beekeepers' Associations will hold its

annual meeting in the Y. W. C. A. Building, 339 Onondaga Street, Syracuse, December 10 and 11. An excellent program has been arranged dealing with problems of particular interest to commercial beekeepers. One day will be spent on the subject of marketing. The state association will be reorganized at this meeting, so it behoves all beekeepers interested in the future of the industry in this state to be present.

B. A. Slocum, Ithaca, N. Y.

Start Now to Plan Your Attendance at the National Convention of the

American Honey Producers' League, American Honey Institute, Bee Industries Association of America, Apriary Inspectors of America, to be held February, 3, 4, 5 and 6, 1930, at Milwaukee, Wisconsin. This will be held in conjunction with the American Honey Producers' League just as was done last year. Notice of the League meeting is given elsewhere in these columns. This is the biggest meeting of the year by all odds, and all beekeepers that can possibly go to it should do so.

Coffey County (Kansas) Meeting

Beekeepers of Coffey County, Kansas, met in the court house at Burlington, October 29, to hear Dr. R. L. Parker, State Apriarist, speak. Invitations had been sent out to three hundred beekeepers. Discussing the management of the apiary proved to be interesting to everyone present. This association, formed only a year ago, has fifty members.

Kathleen Williams, President.

Beekeepers Form New Association

The beekeepers of northeastern Illinois met in the Bismarck Hotel in Chicago on November 20 to form a new association, to be known as "The Northeastern Illinois Beekeepers' Association." This association is the result of a number of meetings among beekeepers from five or six counties in that part of the state. They arrived at the conclusion that an organization to include every beekeeper in a number of counties would be the best tool to use in solving their problems.

The chief speakers for the evening were C. D. Adams, of the Wisconsin Department of Markets; A. L. Kildow, Chief Inspector of Apiaries in Illinois, and V. G. Milum, of the University of Illinois and Secretary of the Illinois State Association.

Everett M. Warren.

Important Wisconsin Meeting

The Wisconsin State Beekeepers' Association will meet in the Hotel Wisconsin, at Milwaukee, December 5 and 6. The following matter is to be discussed: The State Legislature, at the request of the beekeepers, had voted an appropriation of \$6,000 to help develop the marketing of honey,

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NEXT SEASON

Please remember when planning for next season, that Root Queens and Bees will help to increase your honey profits. Prices to be announced later.

□ □ □

**The A. I. Root Company
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Free Catalog**

5 10-frame wood-covered hives . . . \$8.95

**Gulf Coast Bee Company
Houma, Louisiana**

but the work was put in the hands of the Department of Markets and this department has seen fit to discontinue the work without consulting the beekeepers. So this question is to be brought forth at the meeting, when a member of the commission will be present to discuss the matter. Thus it behooves the beekeepers of Wisconsin to be present to hear the discussion and use their influence for a beneficial result. A meeting of the Apiary Inspectors of America will be held at Milwaukee at the same date. —Condensed from "Wisconsin Bee-keeping."

Manatee Beekeepers to Be Well Represented at South Florida Fair

Beekeepers of Manatee, Florida, and surrounding districts will be well represented at the South Florida Fair at Tampa. R. E. Foster, State Apiary Inspector, and E. W. McComber, District Inspector for Manatee and adjoining counties, were recently in Manatee in conference with the county agent and with the beekeepers to get them lined up for the fair. It is believed that Manatee County will marshal a display of honey and honey products that cannot be surpassed in all the state.

Minnesota Meeting

Do not forget the state meeting of Minnesota beekeepers at the University Farm, St. Paul, December 3 and 4. A good attendance is expected.

New Apiary Department at San Antonio Fall Fair

The increased interest in bee culture and honey production in south and southwest Texas in the last three years has caused officials of the San Antonio Fall Fair and Race Meet to create an apiary department as a further aid to the beekeepers in stimulating the markets for honey and improved apiary methods.

Henry Grossenbacher has been appointed superintendent of this new department and will be assisted in arranging the exhibits and in handling the displays in the bee and honey sections by H. B. Parks, Superintendent of the Apiary Department of the A. & M. College Experiment Station.

Members of the Texas Beekeepers' Association are also cooperating to make the exhibit the greatest display of the kind ever given in Texas, according to a statement made by Mr. Grossenbacher. Immediately following the announcement of the new department more than forty entries were made in the various contests for prizes offered by the fair association.

W. H. M.

Mississippi Beekeepers Meet

One of the best meetings ever held by the Mississippi Beekeepers' Association was at Jackson, October 19, during the State Fair. Representa-

tives were present from nearly all sections of the state. On account of illness, President George A. Hammer, of Prairie Point, was not present, and Vice-President Dr. J. D. Shields, of Natchez, presided. The principal topics for discussion were in regard to marketing, and it was found that only a very small percentage of the crop this year remains unsold. As a further aid to marketing, it was agreed that each member would report to the secretary each month the amount of honey on hand, sizes of containers, and prices desired.

It was voted that in future the annual meetings will be held in Jackson on the last day of the State Fair. All officers were re-elected for the next year.

Clay Lyle, Secretary.

Alabama Meeting

The Alabama Beekeepers' Association met at Montgomery on November 7 and 8, and enjoyed one of the most successful meetings that they have ever held, this being the eleventh annual assembly. There was a very large representation of our commercial beekeepers at the meeting and they were all very much pleased with the papers presented, especially those discussions of Mr. L. T. Floyd, who is Provincial Apriarist of Manitoba, Canada. Mr. Floyd gave some very valuable points gained from experience in the package business from the receivers end of the line. These pointers should help very materially our package producers in getting the packages through in the best of condition for their Canadian buyers. Other speakers on the program were: Dr. Warren Whitcomb, Jr., Southern States Bee Laboratory, Baton Rouge, Louisiana; Mr. Howard C. Smith, State Department of Agriculture, Montgomery; Mr. Thomas Atchison, State Bee Inspector, Montgomery, and other members of the Beekeepers' Association.

**A Bit of Christmas Laughter
—With Plum Pudding**

(Continued from page 595)

as only long years of campmeeting, out-of-door, large audiences, clear-up-to-heaven practices could have acquired, such words, and phrases, and emphasis, with little or no show of abatement!

Now, grandmother was always a woman of decision and New England spunk, and, after waiting a bit to give the storm a chance to subside, she took matters into her own hands. Clambering down from the stump and grasping me by the hand, fairly bristling with indignation, forgetful of possible bees, she strode up to where this human volcano still sat upon the ground, and, taking firm

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hold of his shoulder and shaking him vigorously just as he was catching his breath for a fresh volley, she said: "Benjamin, this is enough. Thy prayer meeting training hath been lost in thy pirate ancestors' vile tongue. For shame! Get thee home and on thy knees ask for grace and forgiveness. I will get the horse."

Then, gingerly picking our way over bits of honeycomb and half-smothered bees, past tub staves and hoops, wagon wheels and broken shafts, we finally made our way back to the house, to find poor frightened Jenny trembling and exhausted before the barn door; and I shall never forget the tears in dear, kind grandmother's voice as she led the weary animal into her stall and undid the remaining harness: "Jenny, poor girl, 'tis often dumb creatures must suffer at the follies of the stronger, but never again shalt thou be driven by any hands but my own." And grandmother kept her word.

So that is the story of my first lesson in beekeeping, and through it I was promoted from the kindergarten class into the primer.

But to return to honey cookery. I do not know that anyone else is old-fashioned enough to make mince meat these busy days, but I do always feel so rich when I know that on the back of my pantry shelf is a neat little store of fine honey-made mince meat for jolly old-time mince pies for special occasions. Try this recipe and you will be delighted:

Honey Mince Meat. Mix together one cup chopped apple, one-half cup seeded raisins, one-half cup currants, one-fourth cup butter, one tablespoon lemon juice, three-fourths cup honey, one teaspoon cinnamon, one-half teaspoon cloves, one-half teaspoon nutmeg, one saltspoon mace and one teaspoon salt. Add enough stock in which meat was cooked to moisten, heat to boiling point, simmer one hour; then add one cup chopped beef (cooked) and two tablespoons currant or grape jelly. Cook fifteen to twenty minutes, place in crocks or jars, cover tightly and keep in cool place until needed.

Honey Plum Pudding. If you like the delightful old English customs, why not have a plum pudding this Christmas? Put through the food chopper four cups of stale bread crumbs. To them add one and one-half teaspoons salt, one-half teaspoon nutmeg, one teaspoon cinnamon, one-third teaspoon cloves, one-third teaspoon mace, and mix well. Pour over these three-fourths cup of hot milk blended with three-fourths cup honey. Let cool, then add one cup chopped suet and the well-beaten yolks of four eggs. Blend carefully, then add two cups seeded raisins, one-half cup chopped currants, one-half cup chopped figs, one-half cup (Continued on page 621)



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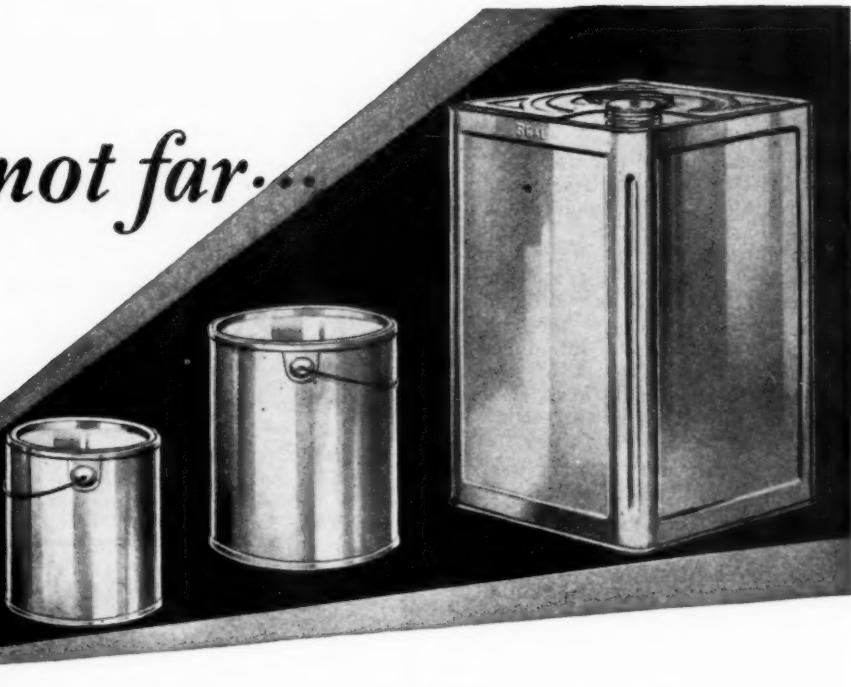
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Crop and Market Report

Compiled by M. G. Dadant

For our December report we asked our correspondents to answer the following questions:

1. How are bees and honey plants going into winter?
2. How is honey selling?
3. Is comb honey in better or less demand than a year ago?
4. Are buyers active in a jobbing way, and what are they offering?

CONDITION OF BEES AND PLANTS

In most instances, bees are in exceptionally good condition for the winter. Very few reports gave otherwise than a favorable condition for bees for going into the winter, although many reported fairly heavy feeding in order to be sure that the bees would have sufficient stores to carry them through the inclement weather. The late dry weather in some northern areas tended to cut short the crop and made necessary some feeding, which was exceptional to the usual year.

As to honey plants, the entire central and eastern area has been bathed in plentiful rains during the fall, and the clover plants look exceptionally good. The entire South also seems to be in fairly good shape for rains, and honey plants look desirable. Again, the drought in the northern and western areas had a tendency to cut the condition of honey plants and make it questionable how favorable the plants would come through the coming year. However, recent rains here also have helped considerably. Nevada and California also report too dry conditions. However, as far as California is concerned, the rains which really matter with them come after the first of the year and really determine whether the plants are going to be in a condition for the honeyflow or not.

In Canada, conditions are extra fine in the eastern sections, with too dry weather in the prairie provinces. This may perhaps be made up, at least in part, by snows and late rains.

HONEY SALES

In most sections the honey sales have been either extra good or at least good to fair. This applies to eastern and central areas. In the South the universal condition is slow honey sales and low prices. The same conditions exist to some extent locally in New Mexico and Arizona, as well as in Nevada and Oregon. As a general rule, the demand, we believe, is somewhat above the ordinary for the type of weather we have had. In other words, the weather has been unseasonably warm; and even so, honey has moved at a fairly good rate. With the coming of cold weather, whenever it does come, undoubtedly there is going to be a quickening of demand for honey, provided the cold weather comes sufficiently early before the holiday "flood" is on the people.

In a jobbing way we doubt whether the demand has been quite as good during the past month as it was earlier. However, there is very little tendency to shade prices in order to make sales.

COMB HONEY SALES

In most instances we find that comb honey is in less demand than formerly, although the southern areas re-

port that bulk comb is moving in a rapid fashion compared to the extracted.

The only redeeming feature of the comb honey market is that in many instances the sales have been quickened by the new style of package in which the individual comb honey section is being sold. We refer namely to the cellophane wrapper, which has had a very heavy sale, not only to beekeepers but largely to retail stores and market places which are buying their honey in regular comb honey cases and packing themselves so as to have a sanitary package for the market. In this connection we call everyone's attention to the fact that comb honey so packed in a sealed wrapper must have the producer's name and net weight stamped thereon without a doubt. It is not necessary where the comb honey is sold open, at least not in some states.

JOBMING BUYERS

As stated above, the demand apparently for jobbing lots of honey is not quite as keen as it was a month ago. This is partially due to the fact that some of the large buyers have well equipped themselves and partially due to the fact that carloads of honey are not so readily available now and perhaps largely in the hands of the western associations, who are handling the crop in remarkable fashion.

In other words, it is apparent that the honey is being fed to the trade this year in far better fashion in the carload lots than it has previously.

Another thing which has impressed us considerably is that a number of beekeepers from varying localities have written us that, although there is the cut-price man still selling honey, it is apparent that he is more and more in the minority and the tendency is to hold for a safe and sane price.

All in all, we believe conditions are sound and very favorable to a disposition of the entire crop at present prices or slightly advanced. Jobbing prices are from $\frac{1}{2}$ to $1\frac{1}{2}$ cent in advance of what they were a year ago, which is in itself a good sign.

The only unfortunate condition is that of the southern states, who are not having a very heavy local demand for their honey and are offered ruinously low prices for extracted honey in jobbing lots. Perhaps this is partly due to the fact that some of this honey is of a peculiar flavor, only suited to a market which is used to it. However, we are inclined to think that the southern men could do very well by profiting by the experience of some of the western producers and trying to organize into a cooperative marketing body which can deal with the markets in proper fashion, and not be subject to ruinous prices as offered by a few of the less important buyers.

All in all, with a short fruit crop, with the impetus given by the western cooperatives and by the American Honey Institute, we believe that the present crop will move very nicely. By another crop the best good fortune that could come to the honey producer would be to have some investigations made which would place honey on a high basis as a nutritive food for children and adults. Once scientific investigation has proven the actual value of honey, we believe that it will be the beekeeper's job to keep production ahead of demand. Whether this comes about or not, we can hope for it and boost for it.

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BEES AND QUEENS

HUNDREDS of two-and three-pound packages of pure Italian bees and queens for shipment in April and May, 1930. Also packages of hybrid bees at reduced prices. Write us for prices on these packages, nuclei, or any kind package you may desire. Cotton Belt Apiaries, Paris, Tex., Rt. 2.

TWO THOUSAND two- and three-pound packages of young pure three-banded Italian bees and queens for shipment April and May, 1930. Write for prices. W. D. Achord, Fitzpatrick, Ala.

"SHE-SUIT ME" Italian queens. One 80c; six, \$4.00. Send for circular. See advertisement in January issue. Allen Latham, Norwichtown, Conn.

SAME OLD PACKAGE—Two pounds Italian bees, two combs (Hoffman frames), young Italian queen laying, to you. Same old price—six dollars per single package. Same old terms—one-fifth down to book order. May delivery, f. o. b. Same old Jes Dalton, St. Francisville, La.

TESTED QUEENS—For the winter months. Queens for sale any time, sent anywhere; \$1.00 each. Send the order, get the queen, save the colony. D. W. Howell, Shellman, Georgia.

PACKAGE BEES—Special price for 1930. Price list free. The Crowville Apiaries, J. J. Scott, Prop., Winniboro, La., R. 1.

PACKAGE BEES AND QUEENS—Jasper Knight, Hayneville, Ala.

SUNNYLAND BEES ALWAYS PLEASE. Inquiries solicited. Crenshaw County Apiaries, Rutledge, Ala.

HIGHEST grade Italian queens—Tested, \$1.50; untested, 75 cents. Package bees, one pound, \$1.50; two pounds, \$2.50; three pounds, \$3.25. Have had no disease. State inspection certificate with each shipment. Safe delivery guaranteed. T. L. Davis, Buffalo, Leon Co., Texas.

THRIFTY Caucasian queens from daughters of imported mothers. After April 15: One, \$1.50; twelve, \$14.00. Safe arrival. Tillery Bros., Greenville, Ala., R. 6, U. S. A.

FOR SALE

FOR SALE—600 colonies bees with extracting equipment, fully equipped; located in the heart of the sweet clover belt of North Dakota. No disease. Reason for selling, other interests. Write F. S., care Bee Journal.

FOR SALE—In sunny California, 160-acre ranch; 90 colonies of bees, free from disease; worlds of equipment. New extracting house. No crop failures. All implements go with ranch. Five-room house, furnished; just move in and go to work. All for \$3500; \$2500 cash, balance easy payments. Am selling on account of my having to take charge of my father's ranch in Iowa. J. B. Hohmann, Stony Ford, Calif.

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Ads as small as ten words, costing only 70c, are accepted here, but our regular advertisers have demonstrated that it pays to tell more. Use enough words to thoroughly describe your offering and you'll sell quicker. Address all orders or inquiries to the Classified Advertising Department of the American Bee Journal, Hamilton, Illinois.

Advertisers offering used equipment or bees on combs must guarantee them free from disease, or state exact condition, or furnish certificate of inspection from authorized inspector. Conditions should be stated to insure that buyer is fully informed.

FOR SALE, or let on shares to reliable bee man, eighty-five stands bees with supers, extracting outfit; all in good condition. F. M. Parrill, Owner, Iuka, Ill.

THIS means honey for you. I have large, strong, heavy-rooted vitex trees. Some of them bloomed this year. Also seed for sale. Joe Stallsmith, Galena, Kans.

FOR SALE—Chinese "vitex" trees. Bloom from spring until frost. Wonderful nectar feed for bees. Prices, one foot, \$1.00; two feet, \$2.00; three feet, \$3.00. Two- and three-foot trees bloomed this summer. Will book orders for fall shipments now. Adam Scott, 825 Range Line Ave., Joplin, Mo.

SELLING 150 colonies of clean Italians that made over sixteen tons of honey this year. Will sell over \$4,000 worth of honey after containers are paid. House, honey house, city lots, with electricity, city water. Splendid wholesale honey route; close to Seattle and Tacoma. All very reasonably priced. Full particulars from owner. Sherman Whitney, Puyallup, Wash.

FOR SALE—Forty-five colonies of bees in ten-frame standard hives. In fine condition, no disease. Also comb honey equipment. School work makes immediate sale necessary. Miss Edith Adams, Earlville, Ill.

HONEY FOR SALE

FOR SALE—White clover honey with true white clover flavor, in new 60-pound cans. By golly, it's good. Price and sample. J. W. Bittenbender, Knoxville, Iowa.

FOR THE finest honey obtainable, reasonable, write Lee Horning, any time. A producer. Morrison, Ill.

DID you produce enough honey to keep your trade going? If not, write A. L. Kildow, Putnam, Ill. He will be glad to help you.

CHOICE clover honey in new 60-pound cans. W. H. Mays, Goshen, Ind.

WATER WHITE extracted, in case, ton or carload. Use no capping melters. Sample 15c. George Seastream, Moorhead, Minn.

FOR SALE—Finest white clover chunk and extracted in 5- and 60-pound tins. Joseph H. Hoehn, Ottoville, Ohio.

COMB, extracted and chunk honey in ten sizes glass containers and 2 1/2, 5-, 10- and 60-pound tins. Livest labels in U. S. or plain. One of our special display cases with \$25 and \$50 orders. Write for free illustrated circular showing our packages and free samples of honey. Griswold Honey Company, Madison, O., U. S. A.

Copy for this department must reach us not later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

CHOICE extracted and chunk honey. Henry Stewart, Prophetstown, Ill.

FINE quality white clover honey in new 60-pound cans, one to a case, 10 cents per pound. John Thompson, Lloyds, Md.

FOR SALE—Best quality chunk honey, in any size container, also in shallow frames. Frank Bornhoffer, Tobasco, Ohio.

FOR SALE—Light amber honey from clover and goldenrod. Lewis Klaty, Carsonville, Michigan.

FOR SALE—White clover honey in 60-lb. cans. Prices on request. John Olson, Davis, Illinois.

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Company, 230 Park Avenue, New York.

FOR SALE—Best white clover honey. Edw. Klein, Gurnee, Ill.

BLACK HILLS fancy light extracted honey from sweet clover and alfalfa, in large and small quantities. Ernest W. Fox, Fruitdale, S. D.

FOR SALE—Clover honey in new sixties. Prices on request. Roy Littlefield, Exira, Iowa.

HONEY for sale, comb and extracted. Write C. H. Phillips, LeClaire, Iowa.

WANT bids, on car lot only, fancy sweet clover comb honey of 1930 crop, up to June 1. R. A. Morgan, Vermillion, S. D.

WATER WHITE clover honey, heavy body, clear as crystal, 10c pound. Woodland Apriaries, Howell, Mich.

FOR SALE—Light amber and dark amber extracted honey. Samples 15c. Oak Ridge Farm, Stuyvesant, N. Y.

WHITE CLOVER honey in new 60-pound cans, also comb honey. Edwin Krinke, Bay City, Wis.

CLOVER and clover-buckwheat blend extracted honey, good body and flavor, 9 and 12c, case lots. D. H. Morris, Swanton, Ohio.

FOR SALE—Finest quality white clover honey, \$10.50 a case. Martin Carsmoe, Ruthven, Iowa.

WHITE CLOVER honey, 2-60 to case, 10c lb.; 10 cases, 9c. Buckwheat, 2-60 to case, 7 1/2c lb. 1-lb. sample, 25c; no stamps. F. W. Summerfield, Grand Rapids, Ohio.

RASPBERRY and clover extracted honey in 60-pound cans at 12c pound; twelve five-pound pails \$9.60 per dozen. Fancy white comb, \$5.25 per case. L. J. Carter, 336 M St., S. W., Washington, D. C.

KIRK'S clover honey in new sixties. Write for price and sample. Harry C. Kirk, Armstrong, Iowa.

FOR SALE—Fall honey in 60-pound cans. A. G. Kuersten, Burlington, Iowa.

CLOVER HONEY—Comb and extracted. Dr. E. Kohn & Son, Grover Hill, Ohio.

HONEY FOR SALE—All grades, any quantity. H. & S. Honey and Wax Company, Inc., 265 Greenwich St., New York City.

FOR SALE—White clover honey in 60-pound cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

WHITE CLOVER comb honey, packed eight cases to carrier. W. L. Ritter, Genoa, Ill., DeKalb County.

FOR SALE—No. 1 clover comb honey, \$4.50 per case; No. 2 clover and dark comb, \$3.00 per case of 24 sections. H. G. Quirin, Bellevue, Ohio.

CHOICE clover honey, comb and extracted. Write for quotations. M. Larson & Son, Box 144, Gardner, Ill.

FOR SALE—Clover honey in 60-lb. cans. Sample and prices on request. E. C. Rasmussen, Exira, Iowa.

WANTED—Honey, carloads or less. Van's Honey Farms, Hebron, Ind.

FOR SALE—Straight white clover comb, also extracted. Sample 20c, to apply on first order. C. Holm, Genoa, Ill.

FOR SALE—Extracted honey in 60-lb. cans. Henry Hettel, Marine, Ill.

FINEST white clover honey in 60-lb. cans and 10-lb. pails. State quantity wanted. Andrew Schuster, Platteville, Wis.

FOR SALE—Extra choice white clover honey, case or carload; also amber. David Running, Filion, Mich.

EXCELLENT quality, straight white clover honey, extracted and chunk comb, any pack, priced right. Ohmert Honey Company, Dubuque, Iowa.

HONEY (comb and extracted), pure maple syrup, maple sugar and sorghum molasses. Special price to quantity buyers. C. J. Morrison, 1235 Lincoln Way West, South Bend, Ind.

HONEY FOR EVERY PURPOSE—We have it in any amount; light amber and white clover, basswood, sweet clover, buckwheat. Write us what you need and ask for prices. A. I. Root Company of Chicago, 224-230 West Huron Street, Chicago, Illinois.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans. State quantity wanted and we will quote prices. Samples on request.

Dadant & Sons, Hamilton, Illinois.

STURDEVANT'S CLOVER HONEY—St. Paul, Neb. Any quantity.

NEW CROP shallow frame comb honey, also section honey; nice white stock, securely packed, available for shipment now. Colorado Honey Prod. Ass'n, Denver, Colo.

HONEY FOR SALE—White and amber honey in 60-lb., 10-lb. and 5-lb. tins. Write for prices.

Dadant & Sons, Hamilton, Illinois.

SHALLOW frame white comb honey and white extracted honey.

The Colorado Honey Prod. Ass'n, Denver, Colo.

FOR SALE—Northern white, extracted and comb honey.

M. W. Cousineau, Moorhead, Minn.

NEW CROP white clover extracted and chunk comb honey. Write for sample and prices. Kalona Honey Co., Kalona, Iowa.

HONEY AND BEESWAX WANTED

WANTED—A quantity of basswood honey in 60-pound cans. The A. I. Root Co. of Iowa, Council Bluffs, Iowa.

HONEY WANTED—Both extracted and comb. Mail sample extracted. Describe comb, size section, grade, and how packed. Always mention quantity. Hoffman & Hauck Division, 646 Dean St., Brooklyn, N. Y.

WANTED—Dark and capping melter honey. Edw. Klein, Gurnee, Ill.

HONEY WANTED—Small or large lots, white or extra light amber grades, in 60-pound cans. Send samples, state quantity and lowest N. Y. delivered prices. Arthur H. Hoffman, Inc., Richmond Hill, N. Y.

WANTED—Car lots of honey. State quantity, shipping point and price. Mail sample. Hamilton, Wallace & Bryant, Los Angeles, Calif.

WANTED—A car or less quantity of white honey in 60-lb. cans. Mail sample and quote lowest cash price for same. J. S. Buckley, 816 Hazel St., Birmingham, Mich.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cents a pound for wax rendering. Fred W. Muth Company, 204 Walnut St., Cincinnati, Ohio.

WANTED—Honey, either comb or extracted. Write us if you have surplus honey to market. We can use any quantity. Sioux Honey Association, Sioux City, Iowa.

SUPPLIES

SHIPPING CAGES for less than ever. Cut, ready to mail, from sugar pine. No metal. Shipped flat at the lowest rates. Sample, postpaid, 15 cents. E. P. Stiles, C. P. O. Box 422, Houston, Texas.

60-POUND used cans special. Can supply 500 cases practically new cans, mostly large cap openings, dry heated, not rusty, at special price 25c case while they last. Order quick; payments on arrival. Arthur H. Hoffman, Inc., 1043 Wyckoff Ave., Brooklyn, N. Y.

STRAW SKEPS, \$5 each, prepaid. Photos on request. G. Korn, Berrien Springs, Mich.

SPECIAL SALE of comb honey cartons at \$7.50 per 1,000, with window or plain. Ask for sample. A. G. Woodman Co., Grand Rapids, Mich.

USED 5-GAL. TINS—Can ship 500 cases or more dry heated used cans, mostly large caps, finest cases, at 25c case special f. o. b. N. Y. City, and suggest ordering now for spring and summer crops, as none on hand after April. Arthur H. Hoffman, Inc., Richmond Hill, N. Y.

SPECIAL DECEMBER SALE—White pine No. 1 quality Hoffman frames \$3.95 per hundred; ten-frame standard dovetailed hive bodies with Hoffman frames, \$1.00 each; ten-frame reversible bottoms, 29 cents each; inner covers, 15 cents each. Send for free catalog and price list today. Schmidt Bee Supply Company, R. 2, North St. Paul, Minn.

WANTED

WANTED—To buy or lease bees and equipment in the Dakotas. Wesley Foster, Boulder, Colo.

YOUNG man, some experience, desires spring season position in South in package bee queen-rearing establishment. Milton Benner, Decatur, Mich.

EXPERIENCED beekeeper wishes connection with large producer of comb or extracted, either to manage or run on share basis. Preferably in the states of Idaho, Montana or Wyoming. A. Wendte, 1002 East Seventh St., Los Angeles, Calif.

HELP WANTED—Experience, temperate, reliable and honey men of good habits, for our package bees and queen business for season of 1930. Must be sober, trustworthy and industrious. Write fully in first letter, giving qualifications, experience and wages expected. York Bee Company, Jesup, Georgia.

TO GO SOUTH, season 1930. Will take two-thirds of wages in package bees. Box 11, Swanton, Ohio.

BEEWARE, Dadant's wired foundation and "Canco" cans for the Northwest. Catalog prices f. o. b. Fromberg, Montana. Write for prices. B. F. Smith, Jr., Co., Fromberg, Montana.

MAKE queen introduction sure. One Safin cage by mail, 25c; five for \$1.00 Allen Latham, Norwichtown, Conn.

100 USED eight-frame comb honey supers, complete. Size 3 1/2 x 5 x 1 1/2; plain; 50c each. Ohmert Honey Company, Dubuque, Iowa.

SAGGED COMBS are result of slackened wires caused by wires cutting soft wood of frames. Use metal eyelets. Per 1,000, 60c. Handy tool for inserting eyelets, 25c. Postage 3c per 1,000. Superior Honey Co., Ogden, Utah.

FOR SALE—Foundation, bee brushes, comb honey cartons, feeders, nailed and painted bodies, bottoms, covers, and bodies, veils, sections, a big assortment of frames, excluders, comb and extracting supers, k. d. and many other items in good, usable condition. Reason for selling, items no longer listed in our catalog. Prices the lowest anywhere for the value. You can address G. R. Lewis Company at Watertown, Wis., Albany, N. Y., Lynchburg, Va., Texarkana, Ark., or Sioux City, Iowa.

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Mr. P. G. Smith, who owns an apiary near Garrison, Kansas, invited the biology class of the high school to visit his apiary. They were glad to accept the invitation in order that they might have a better opportunity to study the habits of the bees by actual observation.

Mr. Smith gave the class interesting information that he had gathered from his own observation. They were permitted to see the bees at work on the comb. They observed that some were filling the cells with honey, some of them packing in pollen or

bee bread, and some busy at other tasks. They also learned something of the organization of the bee colony and the methods the bees employ in their manufacture of honeycomb and honey. Mr. Smith told them something of the various types of plants which furnish the pollen and nectar.

The class gained much from their visit and enjoyed to the full extent the delicious cookies, sweetened with honey, that Mrs. Smith served to them.

Mr. Smith offered a prize of a one-pound jar of honey to the pupil writing the best report of the visit.

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A Bit of Christmas Laughter —With Plum Pudding

(Continued from page 615)

chopped dates, and one-third cup of chopped candied citron. Mix well, then add one-fourth cup grape jelly and fold in the stiffly beaten whites of the four eggs. Pour into buttered mold, cover and steam six hours. This quantity makes about sixteen servings and is delicious served with crystallized honey and whipped cream.

Honey Cream Pie. Blend six tablespoons flour with one-half cup milk until smooth. Add to this one-fourth teaspoon salt, one-half cup honey and one cup milk. Cook in a double boiler until thick, stirring frequently. Slowly pour part of this cooked mixture over the beaten yolks of two eggs, stirring constantly. Return to double boiler and heat until egg is cooked; then add one and one-half tablespoons butter. Pour this filling into a previously baked pastry shell. Cover with a meringue made from the two egg whites slightly sweetened. Brown the meringue in oven.

Plain Honey Fruit Cake. This month is the time to make the more simple of the fruit cakes for our Christmas boxes, and the following, while easy to make and very inexpensive, is delicious and most satisfactory: Mix one and one-half cups of warm honey with two-thirds cup of butter blend carefully. To this add three well-beaten eggs and continue beating. Sift together three cups flour, three teaspoons baking powder, one-half teaspoon salt, one teaspoon cinnamon and one teaspoon cloves, and add sifted ingredients to first mixture alternately with one-half cup milk. Then add one cup raisins, one cup currants, one cup chopped figs and one cup chopped nut goodies. Bake in a slow oven two hours.

A Glance Through the South

(Continued from page 595)

the Automatic Way," issued by the Evaporated Milk Association of Chicago, including honey suggestions furnished by the Institute. More power and support to the Institute.

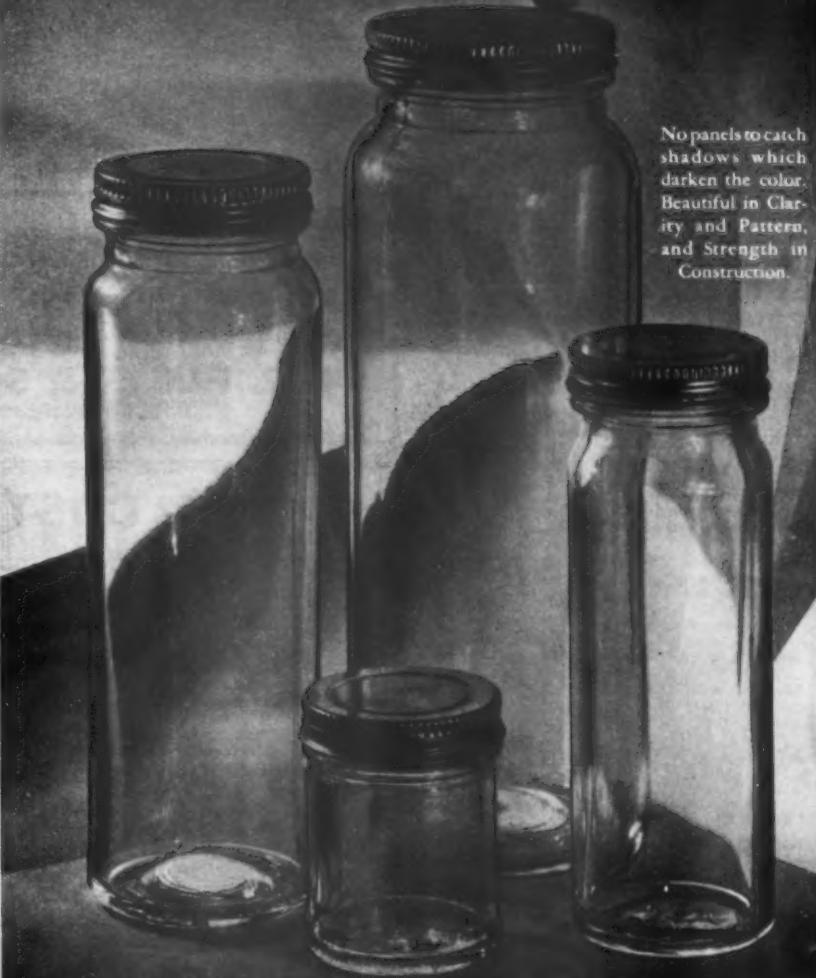
General Conditions in the South

An all-around poor year, is almost the universal report from the whole South; bad spring, poor summer, and nothing extra through the fall.

While we have harvested a short crop of honey, practically everywhere the bees in summer and fall put up enough stores to pull through the winter, yet weather conditions were such as to permit very late queen-rearing. This assures a good wintering for most colonies.

The honey market has been better
(Continued on page 624)

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For Winter Reading and
for Holiday Gifts

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We have a supply of all of these books in stock, but please anticipate your desires as much as possible, so that we may have time to keep our shelves replenished. Some of our books come from European sources, and naturally arrive slowly.

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Flower and the Bee, J. H. Lovell	2.00
Bees and Beekeeping, Cheshire (2 vol.)	6.00
Fifty Years Among the Bees, Miller	1.50
Embryology of the Honeybee, J. A. Nelson	2.00
Anatomy and Physiology of the Honeybee, Snodgrass	3.50
Mysteries of the Hive, D. Evrard	2.50
Manual of the Apiary, A. J. Cook	1.20
Honeybees and Fairy Dust, (children), M. G. Phillips	2.00
The Yankee Abroad, Harry Lathrop	1.00
Life of the Bee, M. Maeterlinck	2.25
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Practical Bee Guide, J. G. Digges	1.50
Lore of the Honeybee, T. Edwarde	3.50
Bee People, Morley	1.50
Beekeeping, E. F. Phillips	4.00
Advanced Bee Culture, W. Z. Hutchinson	1.00
How to Keep Bees, Anna B. Comstock	1.75
A B C and X Y Z of Bee Cul- ture, A. I. and E. R. Root	2.50
Unsere Bienen, Ludwig	3.60
Pearce Method of Beekeeping	.25
Biggle Bee Book, Biggle	.45
Honey-Way Menus, Fischer	1.00
Honey Plants of North America, Lovell	2.50
Maladies des Abeilles, Baldensperger	.50
Les Produits du Rucher, Caillas	1.50
Bee Master of Warrilow, Edwards	1.00
Our Backdoor Neighbors, Pellett	1.50
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Productive Beekeeping, Pellett	3.00
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J. ALLEN, Catherine, Alabama

A Glance Through the South

(Continued from page 621)

locally than for the last two years, due to a local short output. But the export market does not promise as

favorable as it did earlier in the year. First, Germany, our heaviest buyer, seems to have harvested a better crop. Also, Mexico and Guatemala have both dumped heavily on German markets.

There is a good deal of propaganda against American honey in Germany, particularly United States honey. It is well brought out in the September-October "Honey Producer" in an article by W. J. Nolan in which he tells of the propaganda given U. S. honey, calling it "filthy, low in diastase, put up under un-

sanitary conditions," etc. In his article Nolan stresses the economic depression following the defeat of the central powers, plus the slow economic awakening of Russia, their next door neighbor, who are profiting by our loss.

It is probably well to recall that it has been our boast that the "U. S. won the war." Probably Germany remembers this. They also consider the peace of Versailles was forced on them by us. Add this to our attitude in steadily and repeatedly refusing to recognize the present Russian Government. All these points are something for us to think over as well as the way we are advertising "diseased honey, bees, combs, fire, embargoes, disinfectants, and so on. All of these things have a connection with our shrinking German markets.

* * *

Season's Greetings and Well Wishes

I want to express the greetings of the season and good wishes to all those, especially to those in the different states, who have helped carry on this department and make it something of news for the different states. Likewise, I want to express appreciation to the Journal itself for its efforts in helping beekeepers in Dixie Land the past year.

Surely there can be no complaint of lack of space for matters devoted to southern industries and southern problems. This past year the amount of southern material and pictures showing prominent beekeepers who, each in his own way, are working at the immediate problems in this section, its personal descriptions, etc., have all been like get-together meetings, as the months rolled by. My good wishes and good will to all.

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